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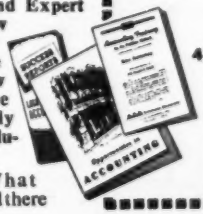


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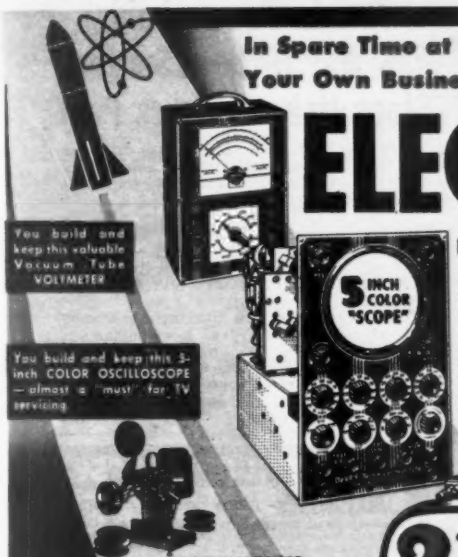


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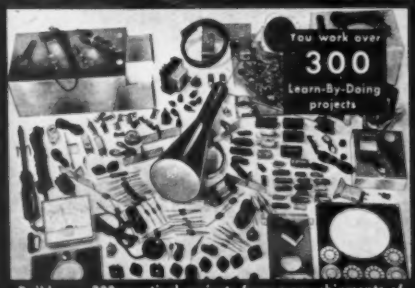


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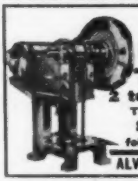

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**Excelsior Medical Clinic, Dept. H5124, Excelsior Springs, Mo.**

# Are you the kind of guy who loves to "tinker" with things?

***And are you completely satisfied with your present kind of work, income, prospects? If these questions "hit home," here's a big fact to realize: OVER 400 MILLION electrical appliances are in use in American homes — and are increasing by 76 MILLION a year! Men trained to service them are cashing in on this "Electrical Appliance Boom" — making $3 to $5 an hour, spare time or full time. It will pay you to send for the FREE BOOK telling how you can quickly and easily get into this profitable field.***

**EARN WHILE YOU LEARN**

**with this APPLIANCE TESTER—Yours at No Extra Charge**

Your NRI Course comes *complete* with all the parts to assemble a sturdy, portable Appliance Tester that helps you earn while you learn. Easy-to-follow manual tells how to assemble and use the Tester *right away*. Locate faulty cords, short circuits, poor connections, etc. in a jiffy; find defects in house wiring, measure electricity used by appliances; many other uses.

With this Tester you save time and make money by doing jobs quicker, making sure appliances operate correctly after repairs.

YOU'RE NOT TOO HAPPY in your present job — right? Not enough money. Work not interesting enough. Don't like the people you work with.

What you *really* enjoy is puttering around the house, getting things shipshape. Fixing that doorbell or squeaky hinge. Putting a new washer in that leaky faucet. Getting the motor of that balky power lawn mower to run smooth as silk.

And sometimes you wonder, "Why can't I do something like this all the time? Why can't I get PAID for doing what I really enjoy — instead of what bores me? Why can't I start some sort of little home business that would be fun and profitable?"

***This is "Made to Order" for You***

If that's the kind of fellow you are, here's a little business that's "made to order" for you. Servicing Electrical Appliances. No big investment or elaborate equipment needed. A few simple hand tools are all you need — and a corner of your basement or garage to work in.

Plenty of money to be made — $3 to $5 an hour, in spare time or full time. At that rate, you may soon find it will pay you to open up your own Appliance Repair Shop. Then you're completely your own boss. Maybe even end up having other fellows work for *you!*

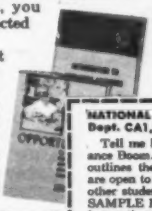
***Why the Boom in Appliances Means Money in Your Pocket***

In addition to the 400 MILLION electrical appliances *already* in use in American homes, this year alone will see sales of 76 million *new* appliances! For example, 4,750,000 new coffee makers, 2,000,000 new room air conditioners, 1,425,000 new clothes dryers. And now that Americans have become so absolutely dependent on these electrical aids, they are dependent on the men who can service them. As a trained Appliance Service Technician, you will be needed — respected — well paid.

**CASH IN ON THE BIG BOOM IN ELECTRICAL APPLIANCES**

The coming of the auto created a multi-million dollar service industry, the auto repair business. Now — with 400 MILLION electrical appliances in American homes — the same thing is happening in *that* field. No wonder that men who know how to service them properly are making $3 to $5 an hour — in spare time or full time!

Don't worry about how little you may now know about electricity. That's where we come in. We'll train you at home, in your spare time, using methods proven successful for over 45 years. We start from scratch, TELL you clearly and SHOW you in pictures everything you need to know. Your training will cost you less than 20¢ a day — and you can earn while you learn.



**FREE BOOK**
***and Sample Lesson***

Our 24-page Free Book will open your eyes to a whole world of new opportunities. Tells how you can "cash in" on America's "Electrical Appliance Boom" — the money our students are making, what they say about us.

Free Sample Lesson shows how simple and clearly illustrated our instruction is — how it can quickly prepare you for a profitable future in this big field. Just mail coupon, letter, or postcard to: *National Radio Institute, Dept. CA1, Washington 16, D.C.* (No obligation — and no salesman will call on you.)

**NATIONAL RADIO INSTITUTE**
**Dept. CA1, Washington 16, D.C.**

Tell me how I can "cash in" on the "Electrical Appliance Boom." Send me your illustrated FREE BOOK that outlines the whole NRI Course, tells what opportunities are open to me, answers my questions, describes success of other students, and much more. Also send me the FREE SAMPLE LESSON so I can see how clear and easy your instructions are. I am particularly interested in:

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**Business A Success**

"Since taking your course I have opened up a small repair shop. At present I am operating the shop on a spare time basis — but the way business is growing it will be a very short time before I will devote my full time to the shop." — *J. O. Stinson, 1596 Poinsettia St., Long Beach, Cal.*

**More Than Doubled Cost of Course**

"I had practically no knowledge of any kind of repair work. Now I am busy almost all my spare time — and have more and more repair work coming in. I have my shop in basement. I have made more than double the cost of training." — *John D. Pettis, 172 N. Fulton, Bradley, Illinois.*

# Dear Editor

Address mail to: Letters Editor, MECHANIX ILLUSTRATED, 67 West 44th Street, New York 36, N. Y.

## • *Unbuckling To Unlock*

I would be embarrassed to use the Car-Key Belt described in your Bright Idea page (Sept. '60 MI). It's a Bright Idea, all right, but the trouble is you have to undress to use the key, which is the tongue of the belt buckle. I would not like to have a cop spot me unlocking.

Inhibited
South Bend, Ind.

## • *Corporal Punishment*

Have just read the article in the October issue entitled This Will Tickle You. Back in 1943 we had a ticklish corporal named Joe. When he was sound asleep we would just make tickling motions about three inches from the soles of his feet and he would jerk them back as though he really could feel us tickling him.

Alfred Vasko
Swanton, Ohio

## • *Coffee Correction*

In your August issue you imply the automatic coffee machine pictured in It's New is a German invention using powdered coffee. Actually this is an American invention using freshly-ground coffee and water at 210°. Since 1946 when our company invented the automatic coffee-vending machine, Lloyd Rudd and I were pointing for the day when we could offer the public a machine that would brew each cup individually from fresh grounds and serve it within ten seconds after the coin is inserted. Last year we achieved this goal and we sent one of our machines to the International Restaurant Show in Hamburg, Germany, where the picture you used was taken. We hope you will advise your readers that this is an American invention and that small business can still succeed here in America.

R. C. Melikian
Vice President
Rudd-Melikian, Inc.
Hatboro, Pa.

## • *Small Magnets*

Some time ago numerous magazines carried ads for small magnets. But now, since I am conducting an experiment requiring such magnets, I cannot find ads for magnets. Can you tell me where I can purchase them? Also how permanent are these so-called permanent magnets, and will attractable metal become magnetized?

O. C. Carleton
Toledo, Ill.

*Try Edmund Scientific Co., 101 East Gloucester Pike, Barrington, N. J. We have been using some small magnets for five years and they still hold on tight. Magnetism does not last in metals that have been near magnets.*

## • *Late Late Lovers*

My girl and I like to watch the Late Late Show but don't like to wake her folks up. Could we both listen to a pillow speaker like the one MIMI is using on pg. 60 of the Oct. MI?

R.B.
Bronx, N. Y.

*If it's all right with your girl's folks, it's all right with us.*

[*Continued on page* 14]

# What keeps YOU from making more MONEY?

Just what is the matter—why aren't you making more money? Look around—probably many of the people you know are doing a lot better than you. What is the reason?

Your own native ability is probably just as good as theirs—your personality and appearance are probably just as good.

But—they have something you lack—the fact that they have a better job and earn more money proves that. Success today is measured by the dollar sign.

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## Dear Editor

[*Continued from page* 12]

### • *Epoxy Cement*

I was about to purchase a new motor block for my two-cycle Clinton engine, as I had thrown a rod through the case. Then I read your article on Epoxy Cements and decided to try it. I drilled small holes (approx. $\frac{1}{16}$" in diameter and ⅛" deep) with a small center drill, then inserted wires to form mesh across the hole. Then I placed cardboard inside crankcase against broken area and inserted packing to hold in place. I then filled in broken area from outside with Epoxy Cement and let dry 24 hours. I reassembled engine and received satisfactory results. There are quite a few of these broken crankcases around and I thought possibly your readers would be interested in knowing they can be repaired with this cement.

Jack Organ
Wheeling, W. Va.

### • *Bold Farm Program*

Senator Mundt is not going to solve the farm surplus glut through the methods outlined in the MI of Sept. '60. The good Senator suggests: "If we but use the brains of some of our jet-age scientists in an agricultural Manhattan Project that includes both creative and marketing research we can bring to American homes a flood of new products that will stagger the imagination." Why should I be enthusiastic about a flood of new products? A better solution would be to export our surplus farmers. Since the American taxpayer is being bludgeoned from too many efficient farmers and there is a dearth of them in India, South America and so on, I suggest that the path should be cleared for the easy migration of this segment of our population to other countries.

Frank Seidle
Idyllwild, Calif.

*Our Uncle Herman will love this. He's the most inefficient farmer in Somerset County.*

[*Continued on page* 16]

# "I call it a bad day if I don't make $25 before noon"

**(This chair alone brought $4.50 with twenty-five minutes work and 32¢ in cleaning materials.)**

*by Harold Holmes*

"Just a few months ago I made the big move. I gave up my job and started spending all my time in the little business I had been running on the side. It wasn't an easy decision, but, now I'm tickled to death I made it. Not just because I'm my own boss or because I have an excellent chance of making over $10,000 this year. It goes deeper than that.

"You see, this idea has caught on like wildfire in my town. Not a day goes by without my phone ringing with women calling for appointments. The beauty of it is that once a woman becomes my customer, she calls back year after year. Not only that, she tells her friends, too, and they call me. Before I know it I'm swamped with work. (And at $7.50 an hour net profit it doesn't take long before my bank account is really mushrooming.)

"Funny thing, but back last year, before I started, I never realized the money there was in this business waiting for someone to come along and collect it. Just think: every house in town has furniture and most have rugs or carpeting. I concentrate on just the better homes and have more work than I can handle. You know why? Because women are fussy about their furnishings. Can't stand to see them dirty. That's why they call me over every year.

"The average job is worth $25.00 to me and takes a little over 2 hours. Out of this, after paying for materials, advertising and other expenses I net about $15.00 clear profit. This means I need just 3 jobs a day to clear $11,250.00 in a year. Frankly, since this will be my first full-time year I'll be glad to hit the $10,000 mark. But after that this business should grow larger each year until I have to hire men to help me handle the business.

### Personally Trained

"Believe me there's nothing magic about it. I didn't know a thing about cleaning home furnishings before I became a Duraclean dealer. But after my application was accepted, I was trained in their factory-training school and by a dealer in a nearby town. I was astonished by the short time it took me to become an expert. Actually, much of the credit must go to the Duraclean process, which is so safe it has earned the Parents' Magazine Seal.

"The portable machine you see is just one of the electrical machines I use. It manufactures a light aerated foam with a peculiar action chemists call 'peptizing'. It means that instead of being scrubbed deep into the fabric, dirt is gently ABSORBED by the foam, leaving the fabric clean all the way down. Women can't believe their eyes when they see how it works. Colors appear bright again, and rug pile unmats and rises like new. I don't have to soak rugs or upholstery to get them clean, which ends the problem of shrinkage, and means the furnishings can be used again the very same day. This alone has brought me a lot of customers.

"As a Duraclean dealer I make money with four other services, too: ***Duraproof*** . . which makes furnishings immune to moth and carpet beetle damage (it's backed by a six year warranty). ***Durashield,*** a brand new dirt-delaying treatment. It coats fabrics with an invisible film that keeps dirt out. ***Duraguard,*** another new service, flameproofs draperies, upholstery and carpets to reduce charring and the tendency of fires to flame up. And ***Spotcraft,*** which consists of special chemical products for removing stubborn spots and stains. On jobs where I perform all five services, I multiply profits!

"One of the nicest things about being a Duraclean dealer is that I get continuous help from Duraclean Headquarters. My services are nationally-advertised in famous magazines like McCall's, House Beautiful and many others. I also get a complete advertising kit prepared by experts. (There's even a musical commercial!) I get a monthly magazine full of methods to build business and I can meet with other dealers at Duraclean conventions. I'm also backed by insurance. In fact there are over 25 regular services I get under their unique System.

### No Shop Needed

"Maybe you too would like to break away from your job and make a fresh start in a business of your own. Do you need a shop? Certainly not. I operate from home. Need a lot of money to start? Not at all. Duraclean finances reliable men, after a moderate down payment, and furnishes enough supplies to return your TOTAL investment.

"You get everything you need: equipment, supplies, advertising matter, personal training, and regular help from Headquarters. To get all the details, fill out the coupon. There's no obligation and you can *decide for yourself.* I'll say one thing: if you DO become a Duraclean dealer, you'll be glad the rest of your life that you took time today to write."

**Irl H. Marshall, Jr., International Headquarters**
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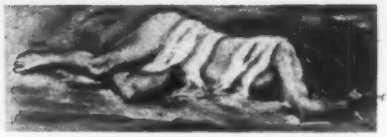

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## Dear Editor

[*Continued from page* 14]

### • *Brick Cleanser*

What kind of acid do contractors use to clean brick? And how much water to a gallon of acid?

Morris L. Suiter
Woodlawn, Tenn.

*Muriatic Acid (a trade term for hydrochloric) is the stuff. They use a 20 per cent solution—which means you'd add four parts of water to one part of acid.*

### • *Survival Kit Suggestion*

I was very much interested in the article on pocket-sized survival kits in the Oct. MI. I have made several pocket-sized survival kits and I always carry one in my pocket on our hikes in the San Bernardino Mountains near here. I always include about two dozen water purification tablets. This is enough to treat a dozen canteens of water. The ones I use are made by the Park Drug Co. of New York City.

Roger A. Kowalski
Fontana, Calif.

### • *Hiccups Again*

While in bed, not so well, I was given a copy of MI, dated Sept. 1958. Re Lawrence Sanders' article on Hiccups. I am sorry to see such odd devices and deceptions used to get rid of this annoying ailment. There really is a cure for this trouble, which is 100 per cent foolproof. Try it yourself at the first opportunity. This is the simple procedure: A glass of water handy? Now tell the victim to exhale all breath and immediately insert his little fingers hard into eardrums. Instantly take glass of water and tell sufferer to drink, and let them drink until they are forced to stop for breath. Remove fingers from ears, and it will be a long time hence ere hiccups bother them again. This is in all sincerity and is, as I say, 100 per cent fool proof. If you could get this article to your American office, perhaps I may have saved the day for many a sufferer over there.

Donald M. Conway
Hamilton, Lanarkshire
Scotland

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# Invention Clinic

*Joseph H. Kraus*

**In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.**

## *Accelerator-Brake System*

*H. N. Luijt of Venice, Calif., sends copies of his patent drawings and an explanation of a combination accelerator-brake pedal. What is our opinion?*

This system has both advantages and disadvantages. The duplex brake system would reduce chance of failure of the brakes. But it does so at nearly twice the expense, and it doubles the cost of repairs. The way in which the accelerator must be depressed would be tiring. There is the question of whether the purchaser would be willing to accept this inconvenience as the price he must pay for the added safety. But your problem is not with the customer. Your system needs to be sold to the manufacturer. It does not lend itself to a relatively simple attachment or change which could be made even by a skilled auto mechanic. It will not be easy to sell this idea.

## *Strip Can Opener*

*Kenneth J. Greeley of Cedar Glen, Calif., sends a copy of his patent issued in 1956. It is a tool for opening strip cans. The device could be made to operate electrically. He has been unable to interest a manufacturer. Why?*

This is a simple tool which can be made to work properly but the market is limited. Except for coffee and nuts, few other items are packaged in strip cans. Maybe some coffee or nut packer could be encouraged to look into the potential of marketing your tool as a premium promotion device. Investigate this angle for a potential sale. And have your invention listed by the Small Business Administration.

## *Chair Leg Extension*

*A. Weber of St. Paul, Alberta, Canada, has developed a chair leg extension which may be adjusted over a considerable distance. Is it practicable and does it have marketing possibilities?*

If this could be made to fit nearly every chair leg it might become successful, provided that the price is attractive. But there are many chair legs of many sizes and styles which this would not fit. This limits marketing potential. On the other hand, adjustable legs are found on both chairs and work or play tables for children. Finally, you could design a unit which would be much less expensive to produce. We recommend a study of furniture of various manufacturers, a reappraisal of your design, then a search. You may come up with something worthwhile. This is not yet quite good enough.

## *Plastic Fence*

*Louis Bencsics of Chicago, Ill., says that he and his brother are planning to build a solid plastic fence with color clear through. It will never need to be painted.*

[*Continued on page* 20]

### INVENTOR'S TIP OF THE MONTH

**The inventor who can design an automatic volume control attachment for a radio or TV set to cut down the decibels of commercials should be able to secure a large market. Such an AVC control should be simple to install and easy to repair, if it is to be a success.**

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## *Invention Clinic*

[*Continued from page* 18]

Be sure of two things: that the plastic will stand up under the extremes of the weather—not get too brittle in winter nor too soft in the summer; also be sure to figure the cost accurately. Plastics are expensive, especially when solid and of this size. You might look into a hollow or foam-filled construction. No patent is needed nor recommended unless you come up with a clever idea to cut cost and/or make construction easy.

### *Circular Level*

*John D. Bertch of Liberty, Ind., sends a diagram and description of a circular level. What is our opinion? Is a working model needed for a patent?*

Visit a camera store and examine some of the older and even newer cameras. You will find your suggested level on them. This level also has been used on transits and in the form of an attachment. Except for so-called perpetual motion, and on the rare occasions when it is demanded, a working model is not needed for a patent.

### *Window Screen*

*C. Rentfro of San Gabriel, Calif., has designed a window screen which he feels has advantages over other screens. He claims it is easier to handle, offers better security and is simpler to clean. What is the possibility of securing a patent? What is our opinion?*

Only a search will reveal if this is patentable. We are not quite as enthusiastic as you are with this arrangement. It entails the addition of a guide. Those who hang screens and storm windows by pushing the screen out of the window, then hooking it in place, would find your screen impossible to insert. Furthermore, you depend too much on the accuracy of a hinged joint. Why not make one of these and try to hang it outside while standing inside the room? You may come up with a better design.

### *Auto Lift*

*C. Mantell, Jr., of Canoga Park, Calif., sends diagrams and a description for an auto lift. Should he proceed with a patent if his attorney reports favorably following a search?*

This depends on what you plan to do with your patent after you get it. The basic design is interesting. One question which needs a favorable answer is whether or not you are able to drive a car up a 30 per cent grade,

especially when it is in need of mechanical attention. But the greatest objection is that your lift needs a space of more than twice the length of the car's wheelbase. Nevertheless, the knock-down construction offers some compensation. Your decision should be made on whether or not you think you can produce this item profitably for a limited market.

### *Variable Speed Transmission*

*C. N. Douglas of Victoria, B. C., Canada, writes: Reference to your reply to S. L. Jenkins in your June issue: Why, if the transmission is basically good and fully variable with no more power loss than through the ordinary gear box, does it not replace the troublesome automatic shifts found on modern cars? Is there any book which describes all of the various transmissions?*

We know of no book which describes all of the various transmissions. Thomas' Registry lists some 80 companies which manufacture variable speed transmissions. So there may be a market for a system if it is any good.

### *Air-Conditioner Stand*

*Royce Roddy of Freeport, Texas, says he has designed a portable air conditioner which permits the air conditioner to be moved anywhere in the home. Is it patentable and marketable?*

Some air conditioners have their own stands to permit the unit to be moved about. So far as we can see, you have merely suggested an elevated truck for this purpose. I doubt that it is patentable.

### *Torque Converter*

*Nelson Hairgrove of Pasadena, Texas, says that he has invented a device which will give three times the torque of the present engine. He is afraid to send his plans to a patent attorney because friends say it will be stolen from him. He says he could not afford a costly court fight.*

In the more than 40 years this writer has been giving advice to inventors, he hasn't heard of a single case of an invention being stolen by a patent attorney. Any registered attorney has more of a reputation and investment to lose than you. Furthermore, he has no idea of how valuable your invention might become, nor does he have any inkling of how well you have established priority. Finally, patent attorneys have processed many inventions which have made inventors rich. But this does not imply that we feel your torque convertor is good. •


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# SCIENCE SHORTIES

TOBACCO EYE, a temporary vision blackout, is caused by excessive smoking.

**An electronic teleprinter, capable of printing 3,000 words per minute, is used by the U.S. Air Force.**

An aurora does not absorb radar signals but may badly distort them.

**A skin thermometer has been developed which gives readings in ten to 15 seconds.**

Pigs raised in an insulated, weatherproof house in which temperatures are kept in the 60° to 70°F. range are healthier, gain weight faster and produce more meat per pound.

**Miniature pressure gauges used in the atomic energy field are so sensitive they can record accurately differences in pressure between the floor and ceiling of a room.**

Radio-detonated pellets have been designed to distribute medicine at specific points in the digestive system.

**The Empire State building in New York City is hit by lightning as often as 48 times a year.**

Steel companies and can makers are testing new types of light gauge steel tin plate that may cut the weight of tin cans almost in half.

**If electricity is cut off, a fully loaded freezer box will usually keep foods frozen for a couple of days; in a half loaded box, however, food may not remain frozen for more than a day.**

Colored surfaces appear to lose their color when they are hit by a light that flickers at a certain rate.

**More men have become millionaires in the U.S. since 1945 than in any other 15-year period.**

Almost one out of every three cups of coffee made in the U.S. is now made with instant coffee.

**A new refractory metal thermocouple combination measures temperatures accurately up to 5,072°F.**

Coating the edges of a drawer and runway with paraffin, wax or powdered graphite may prevent sticking.

**Steel surface coverings for high-speed military aircraft are being made six thousandths of an inch thick, about twice the diameter of a human hair.**

Each American in 1959 ate an average of 160.1 pounds of meat and 428 pounds of dairy products.

**The hummingbird has a long, tubular tongue through which it sucks up nectar.** •

# SPACEMOUSE

A MOUSE named Anphex (Animal Photosynthetic Experiment) may pave the way for solving the food, water and oxygen problems in space flight. Anphex recently survived a 66-day confinement in which his sole food and oxygen supply came from algae stored in his large glass dwelling.

The importance of the experiment is indicated by the fact that a 516-day one-man trip to Mars would require a minimum of two tons of food and water and 180,000 quarts of oxygen, according to biochemist Dr. Russell O. Bowman, a research scientist at Chance Vought in Dallas. Dr. Bowman is shown with the mouse, Anphex, in the photo below.

**Anphex was placed in a** closed ecological system which provided the necessary oxygen and food. Water was sealed in with the rodent. Certain salts and nitrogen-yielding urea were added to the algae medium. The algae, in turn, lived and thrived on carbon dioxide exhaled by the Spacemouse. Deadly carbon monoxide was not produced by the *chlorella pyenoidisa* stain of green algae.

Algae, which is almost flavorless, can be treated so as to taste like steak, fish, coffee, desserts and other varieties of foods. It has a caloric value of about five calories per gram of dried material, compared to four for sugar and nine for butter.

"The ultimate goal is to devise a closed system which will provide oxygen, food and water for man and allow reprocessing of human waste," says Dr. Bowman.

Algae and the Spacemouse may provide the answer to feeding men in space.

—*William M. Hall*

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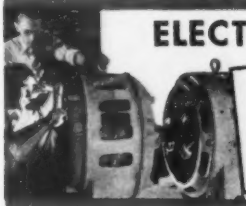

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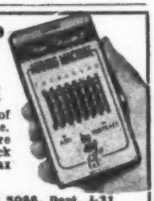

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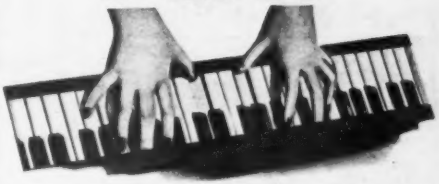

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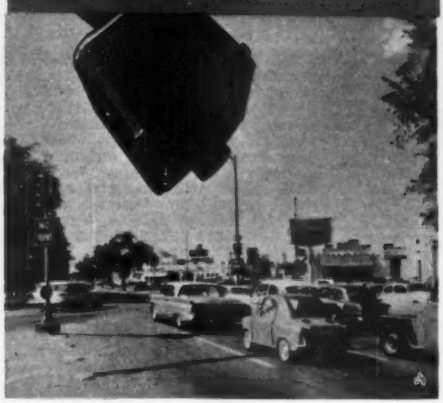

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# PATENTS GRANTED

A WRAP-AROUND windshield with a transparent film or coating to conduct electricity for heating and removing ice, frost or fog won patent 2,954,454 for Romey A. Gaiser of Muncie, Ind.

**Smokers may soon be able to take full-filtered, partly filtered or non-filtered drags from the same cigarette. The custom filter invented by Jacob A. Saffir of Los Angeles, Calif. took patent 2,954,035.**

If you're afraid of being kicked by a cow, forget it. Millford S. Bullard of Crowley, Texas, was given patent 2,954,008 for an anti-kick device. It is yoke-shaped and straddles Bossie's back just forward of her rump and legs. It clamps along the hollow above the hips and against the flesh and muscles of her flanks.

**You can sharpen a knife simply by withdrawing it from the special sheath devised by Leo A. Paldanius of Port Huron, Mich. The**

**sheath has a sharpener built into it which hones the knife blade. The sheath (shown in the photo above) was awarded patent 2,767,530.**

A big polyethylene plastic bag which is placed over a tree by a boom truck got patent 2,953,870 for George J. Nelson of Milwaukee, Wis. The .003-inch thick bag protects fruit trees from frost but permits enough sunlight to enter to mature fruit and keep the area warm. It can be left on all winter.

**Bruce R. Blanchard of Derby, Conn. was given patent 2,952,091 for a gun that casts a fishing lure. It is designed to "eliminate the effort and special skill required" for this leisure-time activity.**

A device that fits on a finger to moisten the glue on an envelope was invented by George C. Henderson, Detroit, Mich. Patent (2,954,-573) rights were assigned to Hallmark Cards, Inc. •

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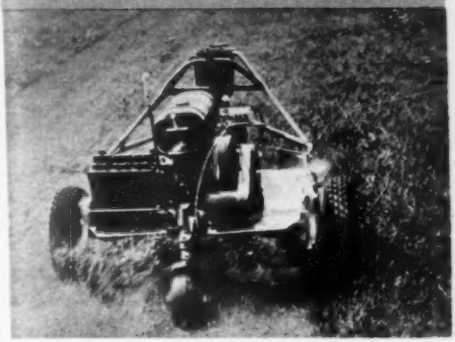

ELECTRONIC mower from DeVry Technical Institute, Chicago, follows pattern of wires buried in sod, needs no other guidance. Once started in garage it does its job unpiloted, then puts itself away. A tensing unit shuts it off instantly if kids or other obstacles get in its way.

EMERGENCY FLASHER that runs on two flashlight batteries, has suction cup to hold to smooth surfaces, shows bright red signal 500 feet. $2.95 ppd. from Henesco, 928 Broadway, New York, N. Y. Flashers are two for $5.00.


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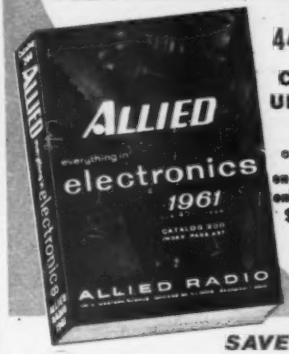


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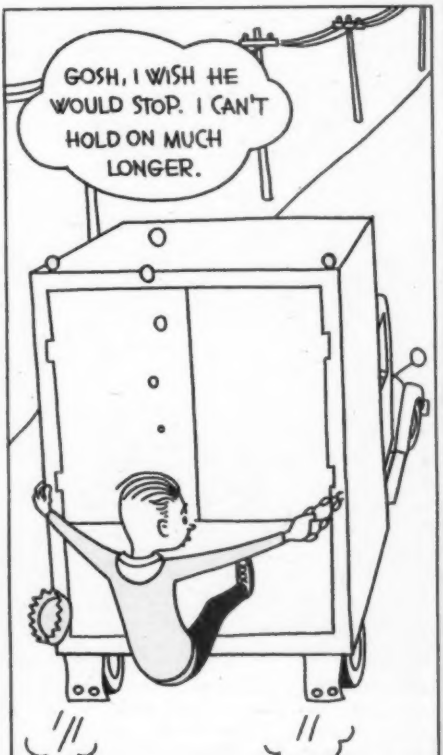

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# NEW LOOK IN CRICKETS

THE Australian cricket is gradually replacing the native American earthworm as the freshwater fisherman's basic live bait—a result of scientific cricket breeding on a large scale.

**The commercial breeding** of crickets has become a big business in the South. In this area the earthworm has dropped far behind in popularity among anglers of lake and stream. It's a trend bound to spread nationally as word gets around that most freshwater fish can't resist the lure of these black, fat little products of the commercial cricket ranches.

One great advantage the cricket has over the earthworm is its rugged natural collar around the midsection. As a result, when the hook is fastened under the cricket's collar, a fish usually has to swallow the whole thing—it won't tear loose by nibbling the way a worm will.

**Crickets are raised** in breeding rooms that are kept dark, at a temperature around 85°F. In this atmosphere the cricket has no sense of seasons. Consequently, females lay their eggs right around the calendar.

Female crickets lay their eggs one at a time. It takes 12 days for the egg to hatch; seven weeks later the cricket is large enough to be shipped to market. Cricket ranchers sell their product to dealers for about $7.50 a thousand. They can be raised in basements and backyards, on a small scale. While a great many crickets escape, they reproduce so consistently and mature so swiftly that a rancher's profits are not seriously hurt by those that get away.

One of the largest ranches of this kind is located in Memphis, Tenn. The ranch is run by Ray Selph, who raises crickets in five different buildings covering an area of nearly 40,000 square feet. The buildings hold an estimated 15 million crickets. They live in long rows of wood boxes filled with excelsior. In 1960 this ranch shipped about 50 million chirpers to dealers. During the fishing season the Memphis ranch boxes and ships about 400,000 crickets a day in 1,000 and 2,000 lots.

**Each week the ranch** uses five tons of chicken mash shoveled by some 30 employees to feed the insects.

If the traditional American earthworm is doomed as the basic bait for the nation's lake and stream anglers, you'll have to chalk it up to this off-beat development of scientific cricket breeding. •

*—Duane Decker*

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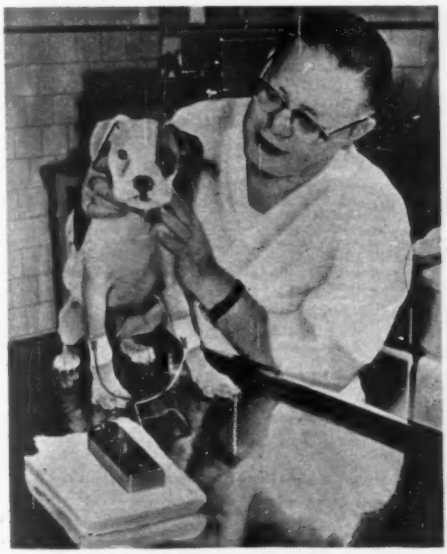
UNION CARBIDE'S new silicone finish for silver hollowware will soon be available in an aerosol spray dispenser. Less than one ten-thousandths of an inch thick, the coat will prevent tarnishing and eliminates polishing as even fingerprints won't "take." The finish is also being applied at the factory on some lines of silver hollowware. It resists food stains, including such items as vinegar and coffee.



HEART monitor, first used in human surgery, has been adapted for veterinarians by NCG Division of Chemetron Corp. Battery-powered device is connected to animal's body during surgery and emits audible "beeps" that tell surgeons the electric-wave activity of the heart. The monitor weighs six ounces and is five inches long. The puppy's name? Beeps!

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$400.00 EVERY WEEK Easily. Sell Two Duplicators a day. Print five colors each turn of the crank. Vari-Color, Box M-36, Shawnee, Oklahoma.

EARN $240.00 A Month at home, spare time, doing only two $5.00 Invisible Mending jobs a day. Big money paid for service that makes cuts, tears, disappear from fabrics. Steady demand. Details free. Fabricon, 6256 Broadway, Chicago 40, Ill.

MAKE MONEY Writing Short Paragraphs! No tedious study. I tell you what to write, where and how to sell; and supply list of editors buying from beginners. Many small checks add up quickly. Write to sell, right away. Send for free facts. Benson Barrett, Dept. C-78A-A, 7464 Clark, Chicago 26.

BECOME INDEPENDENT with your own franchise business. Thousands earning handsome incomes. Request interesting facts today. National Franchise Reports, MX-528, 333 North Michigan, Chicago 1.

EASY TO start Rubber Stamp business at home in spare time. Make up to $9.80 an hour without experience. Facts Free. Write Roberts, 1512 Jarvis, Room CR-4-A, Chicago 26.

NEW! PLASTIC Vacuum Forming Machine. Easy. Profitable. Details. D. Burr, 330 East Center, Kalamazoo, Mich.

HIGH EARNINGS sorting coins for us. Chipco, 1228 Victor Ave., Union, N. J.

MONTHLY PUZZLE Contests! Cash prizes! Spence, Box 11569, St. Petersburg, Fla.

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BAKING — HOME Study: Announcing home study course in commercial baking. Practical basic training. Good field for those with aptitude. Free booklet. "Opportunities in the Baking Industry." National Baking School, 835 Diversey Pkwy., Dept. 2041, Chicago 14, Illinois.

$5,000 FROM HALF Acre growing Ginseng, crop bought. Particulars 10c. Associated Growers, Sperling, Manitoba.

FREE PICTURE Folder, "How to Make $3,000 Yearly, Sparetime, Backyard, Raising Earthworms!" Oakhaven-3, Cedar Hill, Texas.

MAKE MONEY Writing Short Paragraphs. Information Free. Barrett, Dept. C-788-A, 7464 No. Clark, Chicago 26.

DETECTIVES—MAKE Secret Investigations. Interesting occupation. Write, George Wagoner, 125-J West 86th, New York 24.

SHARPEN-SCISSORS, PINKERS. Inexpensive outfit. Clipper sharpener. Blackhawk, Sheldahl 6, Iowa.

INVESTIGATE AUTO Accidents — Earn $750 to $1,000 monthly. More investigators urgently needed. Car furnished; business expenses paid. No college education necessary. No selling of any kind. Pick your own job locality. Meet interesting, important people. We train you at home in spare time. You keep present job until ready to switch. Write for Free Booklet. No obligation. Liberty School, Dept. 101, Libertyville, Illinois.

VENDING MACHINES—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog Free! Parkway Machine Corporation, Dept. 16, 715 Ensor St., Baltimore 2, Md.

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NEW DELUXE Multicolor wholesale catalog, automobile catalog and others. Nationally advertised merchandise. Housewares, appliances, refrigerators, freezers, washers, dryers, television, radios, rugs, furniture, sewing machines, clothing, luggage, binoculars, phonographs, musical instruments, recorders, cameras, projectors, typewriters, power tools, toys, notions, sporting goods, watches, jewelry, novelties, vitamins, drug sundries, cosmetics, books, school supplies, practically everything. Famous brands. Huge discounts up to 40 to 70%. Postcard: Salbyco, Decatur 7, Illinois.

LARGEST WHOLESALE supply in U. S. Free catalogs. Furniture, clothing, appliances, housewares, automobiles and accessories, farm equipment, tools, hobby supplies, new products, imports. Free details. Associated Wholesalers, Box 2758M-2, Sioux City 4, Iowa.

WORLD'S LARGEST wholesale supply. Buy from 269 American, European, Japanese wholesalers. Tailormade suits from Hongkong. 123 Dropship catalogs. Rock-bottom prices. Free details. International Buyers, 216-MI Jackson, Chicago 6, Illinois.

100,000 PRODUCTS WHOLESALE! Terrific Bargains! United Wholesalers, 1265-X Broadway, New York 1, N. Y.

### • • • U. S. GOVERNMENT SURPLUS

JEEPS $278.00, PLANES $159.00, Boats $7.80, Generators $2.68 are typical government surplus sale prices. Buy 10,001 items wholesale, direct. Full details, 627 locations and procedure only $1.00. Surplus, Box 8M1, Thomasville, Penna.

JEEPS—$223.00, TRUCKS—$212.00, Tractors—$68.00, Tools, Guns. Typical Government Surplus Prices. Buy Direct. List Of Depots, Procedure, Full Details Only $1.00. New York Enterprises, Wall Street, Box 402-H12, New York 5.

WORLD'S LOWEST Prices. Free Catalog. Contractors Surplus Company, Williamstown, Mass.

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CHEMISTRY CATALOG 25¢. Expendibles kit free with $15.00 order. Laboratory Sales, Box 161-C, Brighton, Mass.

232 PAGE CATALOG $2.00. Laboratory Materials, 7319 Vincennes, Chicago, Ill.

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FORMULAS, ALL Kinds. Latest. Best, Literature, Stamp. Xemistry, Park Ridge, Illinois.

RESILYER MIRRORS. Formula — $1. D. Dykes, 904 Sunset Drive, St. Joseph, Missouri.

EXCLUSIVE MANUFACTURING Formulas and Processes. List Free. Moon, Martville, N. Y.

FREE FORMULA Catalog. Latest money makers. Western Chemical, Salem, Ore.

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HOME TYPING: $65 week possible! Details, $1. Treasury, 709 Webster, New Rochelle MI-2, N. Y.

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EXCITING ADVENTURE locating hidden loot, treasure, relics, etc., with powerful, electronic M-Scope locator. Lightweight. Guaranteed. From $59.50. Easy terms. Send for Free booklet, interesting customer reports. Fisher Research, Dept. C-7, Palo Alto, Calif.

TRANSISTOR TREASURE Detectors, underwater detectors. Many models. Free catalog. Gardiner Electronics Co., Dept. 3, 2545 East Indian School, Phoenix, Ariz.

TREASURE LOCATORS. Electronic kit and assembled Models from $39.90. Geiger counters and mineralights. Free. Brochure. Electronic Applications Co., Dept. G, Box 8, Arlington 10, Virginia.

TREASURE! MAP, handbook, 25¢. Locators. Howe, 811C Kansas, Atchison, Kansas.

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PRINTING OUTFITS, type, supplies. Send dime for illustrated supply book and samples. Kelsey, Inc., H-57, Meriden, Conn.

MAKE YOUR Own self-molding rubber stamps and printing cuts. Plexirubber, Argyle 3, Wisconsin.

RUBBER STAMP Outfits. Supplies. Kiewiet, 2025 Barney Road, Kalamazoo, Michigan.

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BUSINESS CARDS—Raised letters $3.00 per 1,000. Free samples. Kavanagh, 607 Knickerbocker Ave., Brooklyn 21, N. Y.

COLORED OR White 8½x11 Offset $6.50—1000; $18—5000. Fast! Glaser, 8 West 45 St., New York City 36.

1000 BUSINESS CARDS, "Raised Letters" $3.75 postpaid, Samples. Routh, M-161 2633 Randleman, Greensboro, N. C.

1,000 BUSINESS CARDS, "Raised Letters" $3.95. Samples. Pioneer, MI-1, Island Park, N. Y.

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RUBBER STAMPS, Custom, Stock Business Cards, $2.95—1000. Free Catalog, Samples. Alti, Box 1063, Concord, Calif.

3 LINE RUBBER stamp 50¢, catalog 10¢. Fleetline, P. O. Box 364, Hinckley, Ohio.

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GIGANTIC COLLECTION Free—Includes Triangles—Early United States—Animals—Commemoratives—British Colonies—High Value Pictorials, etc. Complete Collections plus Big Illustrated Magazine all free. Send 5¢ for postage. Gray Stamp Company, Dept. MI, Toronto 5, Can.

FREE! GIANT Bargain Catalog—New Edition listing thousands of bargains including U. S. & B. N. A. stamps, packets, mixtures, albums, accessories and supplies; sent with beautiful approvals. Jamestown Stamp, Dept. E11MI, Jamestown, N. Y.

WEIRD DIAMOND Shape Coffee Stamps —Lovely Flower Triangle! First American big commemorative. Greenland, Idol Dancer, etc. 10¢ with approvals. Capital Stamp Co., Ferrysburg 5, Mich.

500 WORLDWIDE FOR 25¢. Contains U.S.A., Russia, First U.N., Summit Conference, Olympics, Space Satellite—hundreds more! Approvals, illustrated offers included. Horace Gatewood, Winston-Salem, North Carolina.

ALBUM! HUNDREDS of Spaces! Only 10¢. Postpaid! Stampmart, Hartford 1, Connecticut.

225 STAMPS FOR Only 10c! This mammoth value includes Airmails, Pictorials; stamps from strange Countries cataloguing up to 25c each! Also approvals. Mystic Stamp Company, Camden 30, N. Y.

YEMEN FLAG Stamps with Saudi Arabia and Iraq Flags. Also Hospital Stamp. Big multi-colored, unused, scarce stamps. Catalog $1.00, 10¢ with approvals. Ozark Stamps, Spring Lake 5A, Michigan.

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UNITED STATES commemorative collection containing 33 different—10¢. Approvals. White, 516-M Avenue L, Brooklyn 30, New York.

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STAMP JUNGLE including Zabu, Kookaburra, Koalabear, Kangaroo, Rhinoceros, 10¢. Approvals. Crown Stamp Company, Virgil 303, Ontario.

50 ALL DIFFERENT Stamps Free With Approvals. Wm. Rice, 87 Washington Avenue, Kingston 53, N. Y.

25 DIFFERENT COMMEMORATIVES 1893 up 10¢. U. S. Approvals. K & B, Box 70, Brooklyn 23, N. Y.

25 DIFFERENT LARGE American Commemoratives. 10¢ with approvals. Linstamp, St. Catharines 103, Ontario.

307 WORLDWIDE DIFFERENT Stamps only 25¢. Approvals. Niagara Stamps, St. Catharines 203, Ontario.

U. S. STAMPS. Giant Bargain Catalog—20¢. Raymax, 35VL Maidenlane, NYC 38.

NUDES SET (4)—unusual approvals—10¢. Atlasco, Plainfield, Racine, Wisconsin.

PENNY APPROVALS; Regardless. Catalogue! Kloster, 4184 52nd St., San Diego 5, Calif.

100 STAMPS 10¢ WITH approvals. Smith, 508-D Brooks, College Station, Texas.

100 OLD UNITED States between 1861 and 1935, $1.00. Roush Stamps, 51 Chestnut, Mansfield, Ohio.

14,000 DIFFERENT! AMAZING new plan builds your collection systematically, country by country. Only 50¢ weekly. Free details. L. G. Ware, Stepney 22, Conn.

140 DIFFERENT U. S. commemoratives—$1.00. Continental, Box 1553, Washington 13, D. C.

FREE 50 WORLDWIDE Stamps With Inexpensive Approvals. University Stamps, P. O. Box 95, Tamiami Station, Miami 44, Florida.

FREE! 25 EGYPT, 5¢ handling, approvals. Bellet, MI-W, Hazel Park, Michigan.

GIGANTIC SURPRISE Packet, contains "hundreds"—only 15¢. Approvals accompany. Dresel, Box 128-S, West Englewood, New Jersey.

222 DIFFERENT WORLDWIDE plus 66 different U. S. 25¢. Unmounted Approvals. Casto, Box 357, Dunbar, West Virginia.

1000 DIFFERENT $1.00 (value $20.00) approvals. Jacobsen, Crompond, N. Y.

200 DIFFERENT BELGIUM 50¢—Penny approvals included. Reed, Box 980, Chicago 90, Ill.

103 DIVERSIFIED BRITISH Empire stamps, 10¢. Approvals. Niagara Stamps, St. Catharines 503, Ontario.

FREE—ANY Volume Scott's International Album, Scott's 1961 Catalogues, even Master Global Album Free when you buy our sensational foreign approvals. Bargain Stamps, Redlands, California.

GODS OF Ancient Greece; Croatian Legion; U. S. National Parks; Mother's Day; U. N.; Packets; New Issues; Many others free when purchasing approvals. Stamp Farm, 13-25, Oxford, Wis.

FREE—EVERYTIME you buy our exciting Approvals, you receive Absolutely Free Stamps equalling the entire amount of your purchases. West Coast Stamps, Santa Ana 1, California.

FREE—WHEN Buying Our Exciting Approvals We Give Valuable Packets, For Complete Purchases, Also Scotts Albums, Catalogues, etc. Tru-Value, P. O. Box 2098, Santa Ana 3, Calif.

GIANT TOPICAL Collection: Moonrocket sets, Satellites, Atomic Ship, Boy Scout issues, Complete UN Sets, latest Olympics and Sport issues from Togo, Mongolia, Paraguay, Germany, Romania, etc. Plus Big Stamp Dictionary and Approvals. Everything 10¢! Stampex, Box 47-C1, White Plains, N. Y.

WOW! 110 ALL Different Germany 10¢! Zeppelins, Semi-Postals, Airmails, High values, etc. Giant Catalog, bargain lists included with beautiful approvals. Jamestown Stamp, Dept. A11MI, Jamestown, N. Y.

105 DISSIMILAR BRITISH Colony stamps, 10¢. Approvals. Crown Stamp Company, Virgil 603, Ontario.

FREE! SURPRISE "Mystery" packet with approvals. Dancer, B75-X11, Mansfield, Ohio.

1000 DIFFERENT WORLDWIDE Stamps $1.00. Valued over $20.00. To adults only requesting our Popular Packet Approvals. Universal, Box 6, Kenosha 10, Wisconsin.

107 DISTINCT BRITISH Colonial Stamps. 10¢. Approvals. Linstamp, St. Catharines 403, Ontario.

75 DIFFERENT UNITED States. Obsolete and Current. 25c. Ed. Keller, Library 5, Penna.

300 ALL DIFFERENT 25¢ approvals follow. James Cusick, 5 Cambridge Conimicut, Rhode Island.

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TRUNKFUL 25,000 Indian-Lincoln cents mixed (from the 1920's & older). Will pack 'Grab-Bag' style 800 mixed—$50; sample bag of 22—$2. Mrs. Fischer, 5 Centre St., Hempstead 84, N. Y.

FREE BONUS Offer! U. S. bargain list, 10¢ (refundable). Economy Sales Company, Mansfield, Massachusetts.

SIX DIFFERENT Indians $1.00; Free List. Collector's Bargains, Box 356G, New Hope, Pa.

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OLD COLTS, Winchesters, many others, walnut stocks and grips, long list 25¢. Dealers Invited. Want used Colt 38 supers. Laredo Gun Shop, 3110 San Bernardo Ave., Laredo, Texas.

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$500,000,000.00 SEARCH FOR Old Coins. We pay up to: Cents before 1934, $10,000.00; Nickels before 1945, $15,500.00; Dimes before 1946, $5,600.00; Quarters before 1940, $5,100.00; Half-dollars before 1948, $5,200.00; Silver dollars before 1936, $17,500.00; Gold coins, over $30,000.00. Hundreds of different coins worth $10.00 to $35,000.00. Send $1 for new complete buying catalog and premium guide containing illustrations and complete information. Our new 1961 guide, just off the press, lists the Highest Buying Prices Of Any Reputable Coin Dealer. We invite you to compare our high prices with any other catalog, regardless of cost. We have compared and found ours to be the highest. Endwell-Union is proud of its fine reputation and thousands of satisfied customers. We purchased many of the rarest coins to be offered for sale in past years. Do Not Be Misled. Do Not Sell Your Coins For Less Than They Are Worth. Get Endwell-Union's Highest Prices Before You Sell. Send $1 today. A Fortune May Be Awaiting You! $1 refunded when you sell us $10 or more worth of coins. Reliability Absolutely Guaranteed. Endwell-Union Company, Dept. ME-2, Kirkwood, New York.

CASH FOR Coins! Many coins in general circulation bring large premium prices! Send $1.00 for our "Paying Price List"—Direct Mail Service, Box 425-MI, Glendale, California.

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*Easier to get in and out*
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*Easier to get in and out of parking places*

It's as easy as slipping into the driver's seat to see that this new '61 Chevy has got people sized up in beautiful style. For this is one car that makes beauty make sense—from its slimmer, trimmer out size to a remarkably roomy in size. Larger door openings—as much as 6 inches wider—are an open invitation to get in and be on your way. Entrance height is up, too—as much as nearly 2 inches in hardtops. And there's more front seat leg room, more foot room in the rear and generous head room (up to 2 inches more in the sport coupe). Seats—as right for sitting as they are for seeing—are up to 14% higher.

These sensible new dimensions even reach right back to the easier loading new deep-well trunk that lets you pile baggage 15% higher. Packing it is child's play with the loading height dropped as much as 10½ inches down to bumper level. And to wrap it up, that slimmer outside design makes for easier handling, parking and garaging. But really, the best way to see how this '61 Chevy fits your style is to try it on for size at your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

# MAIL FOR McCAHILL

UNCLE TOM ANSWERS HIS MOST INTERESTING LETTERS IN THIS COLUMN. WRITE TO HIM AT *MECHANIX ILLUSTRATED*, 67 WEST 44TH ST., NEW YORK 36, N. Y.

● *On a trip to California recently I ruined the battery in my car by driving across the hot desert without any water in it. I bought a chain store replacement which lasted until I got home but now it's starting to pooh out and I'm faced with buying a third battery in order to get through this winter. Should I buy another "bargain" or dig deep for an expensive box of lead?*

*Arthur L. Roper*
*Philadelphia, Pa.*

Though original equipment batteries are usually a few notches higher, quality-wise, than original equipment tires, generally you get what you pay for, with one or two possible exceptions. Any car that is to be stored in a frigid garage or outdoors during the winter needs a battery with a lot of moxie. When buying a replacement battery, you should be guided by how long you intend to keep the car. If you are planning on several years, then buy the best; it will not only save you money but a lot of frustration, too.

● *With the country's population growing at an alarming rate, I was wondering if they counted you and McMichael as four in the recent census. After all, you're both big enough.*

*Ken Hulbert*
*New Orleans, La.*

It may come as a surprise to you, Ken, but I sincerely question the accuracy of the Official Census. For example, I've been around for quite a few years and have *never* in my life seen a census-taker. McMichael has never seen one either. This also includes both our families; we've never been contacted. If this is an indication of the accuracy of the Federal Census, then we may have a bigger population than China right now. However, those dear, dear Internal Revenue kids know all about me.

● *I was reading in your mail column in MI where two mice were found in the glove compartment of a car which was locked and had no holes. You said something must have laid two eggs in there. First of all, mice don't lay eggs and they don't come to life from an egg.*

*Tommy Kissinger*
*McKinney, Texas*

Well, you learn something every day, Tommy.

● *I noticed in your article on great cars that you gave no mention to the Cord car. Was this an oversight or wouldn't you put it in the class of cars that you were talking about?*

*Elmer A. Norwick*
*Tucson, Ariz.*

It was considered an unusual car but never a great one—except in England where they manufactured special universals for them.

● *I drive a 1959 Chevy Six and average about 18.5 mpg, which I think is quite good in Los Angeles traffic. My problem is this joker in our office who has a hopped-up '59 Impala V8 and claims to get 22 miles per gallon. I've ridden with this guy and he is a real leadfoot who treats every intersection with a traffic signal as his own private drag strip. Is it possible to get good mileage and still drive like a madman? I find it a little hard to believe.*

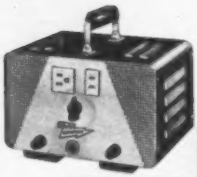
*Harry Kohler*
*Los Angeles, Calif.*

Impossible.

● *I was wondering if you could set me straight in relation to a statement made by an acquaintance of mine who believes that an Austin-Healey 3000 four-seater becomes difficult to handle with rear seat passengers*

[*Continued on next page*]

## The Miracle of Transistors Brings You



# 110 AC FROM BATTERIES

ESB PACKAGED POWER

ACTIVERTER

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### Dependable Power for Hundreds of Uses

Now — using a totally new concept in electronic design — the ESB engineers have developed a revolutionary, fully transistorized inverter-charger, the ESB ACTIVERTER. This major breakthrough in "packaged power" means that you can now have the convenience and the utility that 110 Volt AC current can bring, and you can have it wherever you can take a 12 Volt storage battery!

Just connect the ESB ACTIVERTER to a battery and you can have 110 AC instantly, anywhere, for many hours. You can plug in portable electric power tools, an electric blanket, electric lights, even a television set! A flick of a switch and the ESB ACTIVERTER fast or slow charges 6 or 12 Volt batteries.

### Compact, Rugged, Truly Portable

The compactness of the ESB ACTIVERTER design makes it possible to have a 12 Volt storage battery, an inverter, and a battery charger all in one self-contained and portable package. One PAK-O-POWER ACTIVERTER model provides a source of 110 Volt AC, with an output rating of 500 Watts, in a package the size of a portable picnic cooler! Because solid-state electronic components are used throughout, ACTIVERTERS are both rugged and lightweight. There are *no* moving parts, *no* vibrators.

### 4 Sizes — from 150 to 500 Watts

**MODEL I-152 INVERTER** — Inverter only, operates from direct connection to 12 Volt battery or through cigarette lighter socket of cars with 12 Volt systems. Output ratings: Intermittent Use — 150 Watts, 1.5 Amps. AC . . . Continuous Use — 125 Watts, 1.2 Amps. AC. Shipping Weight: 8 lbs.

**MODEL IC-252 ACTIVERTER** — Inverter-Charger operates from direct connection to 12 Volt battery. Output ratings: Intermittent Use — 250 Watts, 2.3 Amps. AC . . . Continuous Use — 200 Watts, 1.8 Amps. AC. Shipping Weight: 15 lbs.

**MODEL IC-202P PAK-O-POWER** — Inverter-Charger with compartment for 12 Volt battery. Completely self-contained unit. Output ratings: Intermittent Use — 250 Watts, 2.3 Amps. AC . . . Continuous Use — 200 Watts, 1.8 Amps. AC. Shipping Weight less battery: 22 lbs.

**MODEL IC-506S PAK-O-POWER** — The Multi-Service Inverter-Charger-Car Start unit, with large 12 Volt battery compartment and Car Start leads. Completely self-contained with built-in fast and slow charger — Charging rate: 60 Amps. for 6 Volt, and 40 Amps. for 12 Volt batteries. Output ratings: Intermittent Use — 500 Watts, 4.0 Amps. AC . . . Continuous Use — 300 Watts, 2.5 Amps. AC. Shipping Weight less battery: 55 lbs.

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The Electric Storage Battery Co.
Automotive Division — Dept. MI-2
P.O. Box 6266 - Cleveland 1, Ohio

I want to use 110 Volt 60 Cycle AC for _____

Please send me ESB ACTIVERTER information without obligation.

Name _____

Street _____

City _____ Zone _____

State _____


*at turn-pike speeds. Is this true or not?*

*Martin Garelick*
*East Meadow, N.Y.*

It depends on whether the rear seat passengers are sober.

● *I went for one of those TV wonder waxes a short while back and spent a hot Saturday afternoon getting the old boat to shine like the top of your head. My car looked great but two days in the hot sun at the beach and it was as dull as ever. It was "quick to apply" but it came off just as quick. How about an article on car finishes and polishes that will last for a few weeks at least? There must be something that will.*

*Howard Jarret*
*Flushing, L.I., N.Y.*

Roscoe Rathead once said, "There just ain't no easy way." Some of the quick polishes do a real fine job but most of them break down quickly under hot sun, dew and dust conditions. The biggest killer of any wax-type finish is to allow the car to stand out all night, getting coated with dew, and then place it where the early rays of the sun can fry it out. Even the best polishes will break down quickly under this treatment. The dew droplets act as tiny magnifying glasses, burning holes in the finish.

● *How are the chances to be a sports car driver for girls?*

*Brenda Montz*
*Bethlehem, Pa.*

Dandy, if you know any girls who want a sports car driver.

● *I finally caught you making a goof. "SAAB" is spelled with capital letters because it is not really a name but an abbreviation.( Look on its mudflaps if you don't believe me.) Worm your way out of this one!*

*Harold Johnson*
*St. Paul, Minn.*

I'm not quite wormy enough, Harold.

● *Is there really a reason for the egg shape of the Volkswagen?*

*Fritz Hansmann*
*Littleton, Colo.*

Possibly because Ferdinand Porsche liked chickens.

● *In the July 1960 issue of MI you answered a question by a Mr. Black of Fresno, Calif. concerning gas consumption figures in your car test articles. In your answer you stated,*

[Continued on page 52]

# exclusive AC isovolt electrodes

## run cooler, wear better to give you best performance and economy!

You'll get superior spark plug performance and economy when you switch to AC Fire-Ring Spark Plugs. One big reason is the structure of AC electrodes.

AC electrodes are heavier and more massive than ordinary electrodes—and this alone gives them better heat dissipation and longer life. But the pay-off is in their exclusive Isovolt alloy—a patented formulation of nickel, chromium and barium—that provides maximum resistance to gap growth, gap bridging and gap wear.

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AC SPARK PLUG ✿ THE ELECTRONICS DIVISION OF GENERAL MOTORS

**All AC Automotive Spark Plugs feature Isovolt Electrodes. Shown is Extended Shell design.*

AC fire-ring spark plugs

*They must be the best!*

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***Make Big Money!*** With our easily operated, highly efficient Wall Washer, Charles Stelle took in $217 in first ten days. E. L. Goss took in more than $10,000 in one year. G. H. Jones wrote, "*I made a net profit of $1200 on one job.*" And no wonder—this machine washes walls 6 times faster and better than by hand and with no mess—no drop cloths needed.

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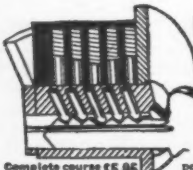

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Centrifugal and Gear Pumps in All Sizes

**LABAWCO PUMPS, Belle Mead 29, N. J.**


## Mail For McCahill

[*Continued from page 50*]

*"For all cars in reasonably good shape, the biggest factor in gas consumption, whether high or low, is the bufflehead behind the wheel." In a recent issue of another magazine there appears an article which states the following: "There is not one shred of evidence to substantiate the theory that average driving habits, good or bad, significantly affect the miles-per-gallon figures of any car." I wonder if you would be kind enough to explain this difference of opinion?*

*K. D. Rooke*
*Beloeil Station*
*Quebec*

The other guy doesn't know what the hell he's talking about.

● *I would like to make a comment on glove compartment doors. I seem to find it necessary to slam mine to make it stay closed, and became the victim of a black and blue thumb nail from getting it right under the latch while slamming the door shut. My wife had a similar accident to a finger joint and as a consequence the joint has a nob over the finger which is disfiguring. Why don't the automobile manufacturers come out with a magnetic holder for the glove compartment? Just a gentle close instead of a slam?*

*R. W. Pedersen*
*Boyd, Minn.*

Sorry about your wife's nob but it sounds like you've got a helluva good idea with that magnetic door lock. Incidentally, how would you lock it? Still think it's a great thought but Detroit probably won't agree.

● *I have started a home museum for miniature cars and am continually searching for car kits and pictures. I would appreciate a letter from you which I shall frame in my museum. Perhaps some of your readers may be able to help with suggestions.*

*Jim Bracken*
*13 Tichenor Terrace*
*Irvington, N.J.*

Okay, readers, help him.

● *In your column in the July 1960 edition of* MECHANIX ILLUSTRATED *you answered an inquiry regarding an alleged boat hauling shakedown racket by citing a personal experience. The law in South Carolina is definite on the maximum width of vehicles and loads which may use the highways. Under this law, maximum width for free movement is 8 feet. Through the office of our State Highway Engineer, however, we issue permits for the*

[*Continued on page 167*]

# NEW TEMPEST

AMERICA'S ONLY FRONT ENGINE ⇔ REAR TRANSMISSION CAR

## 155 H.P. FROM FOUR CYLINDERS*

**(Gas-saving 4! 50-50 balance! Seats six men! Priced with the compacts!)**

The new-size Tempest is primed to scoot on less gas! Five hot versions of the Trophy 4 engine. 110 to 155 h.p. Any choice will move out in a hurry, sail up a steep hill in high gear, has the power for quicker, safer passing. Tempest has it!

Front engine is balanced by rear transmission. (Standard stick shift or extra-cost automatic.) Cuts weight in the front. Easy steering. Longer tire life. Adds ballast in the rear. Improves traction and braking. No big floor hump. Independent suspension at all 4 wheels. Most other cars only have it in front. Wide-Track, too. Gives a solid stance. Secure cornering. There's a 4-door sedan and a station wagon. Prices come close—or even beat—the tags on the compacts. If you're figuring on a new car—figure on a Tempest. See your Pontiac dealer. Drive it.

*With optional 4-barrel carburetor and automatic transmission.

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THE HOT TOPIC IS THE NEW
TEMPEST BY PONTIAC

FRONT ENGINE ⇔ REAR TRANSMISSION

PERFECT BALANCE

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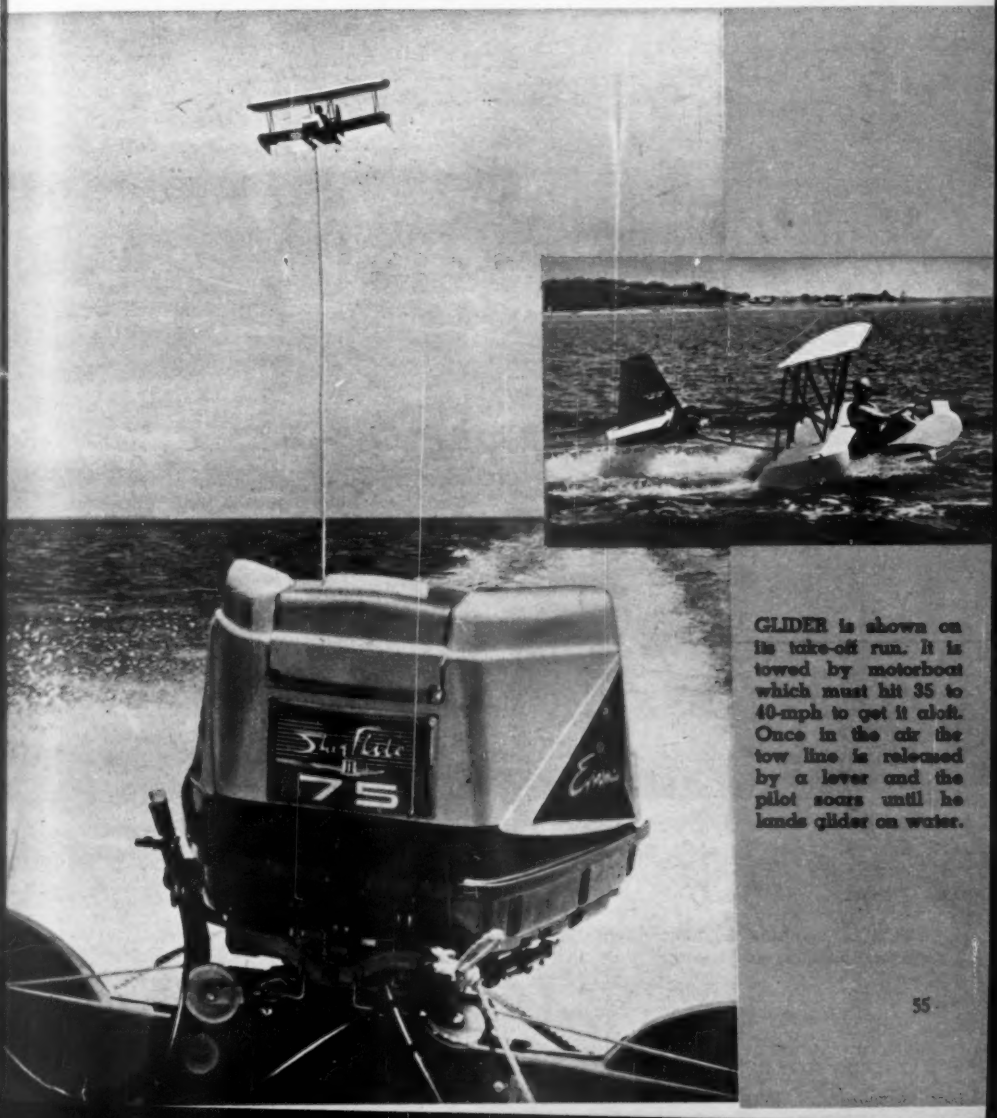
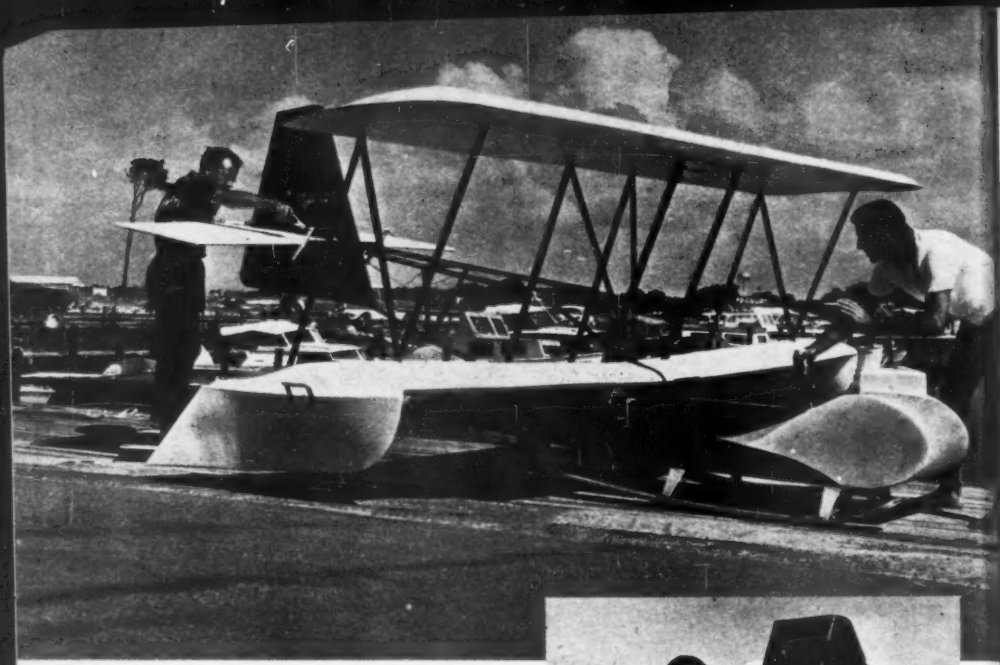
# HERE'S THE *Sea-Glider*

SOARING up to 600 feet above the water in his motorboat-towed, double-wing glider is Captain Bill Skliar's idea of fun. The Army Air Force test pilot and engineer—he's stationed at Eglin Air Force Base in Florida—designed and built the ski-mounted craft to combine water sports and flying.

Skliar's plan was to build a small, simple glider with a low stalling speed. He made a drawing of a scale model

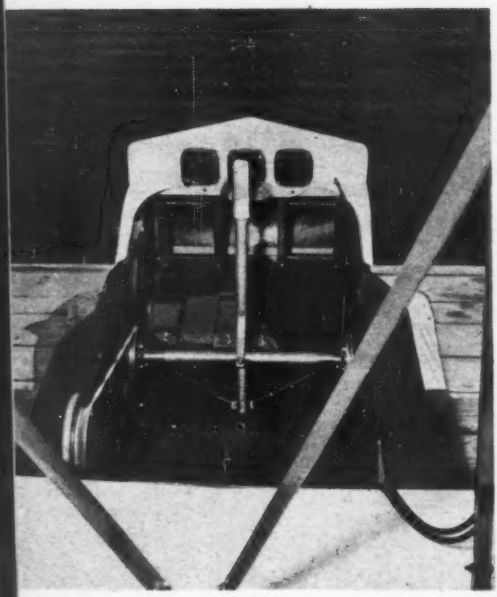



GLIDER is shown on its take-off run. It is towed by motorboat which must hit 35 to 40-mph to get it aloft. Once in the air the tow line is released by a lever and the pilot soars until he lands glider on water.

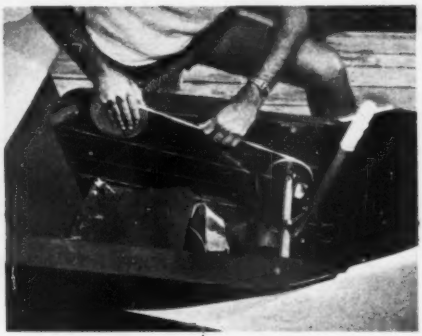


WINGTIP floats on lower wing support unbalanced load when the pilot steps aboard.

PILOT, creator and builder of the glider, Capt. Bill Skliar, makes tail adjustment.



COCKPIT contains dashboard with instruments, joystick to control craft in air.



SIMPLE cable control system operates the stabilator, rudder extention, ventral fin.

and then built a working model.

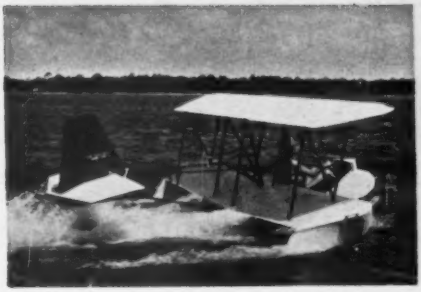
When he was ready to build the full-size glider, Skliar asked Boy Scout Explorer Squadron 508 to help him and with their enthusiastic assistance the glider was completed in June 1959.

**The craft is 12½ feet** long. Its upper wing is 16 feet long and the lower one 15. It weighs 165 pounds and takes off at 35 to 40 mph. The materials used in the glider are fabric, spruce, fir, mahogany plywood, stainless steel, and aluminum hardware. The tail contains three pounds of lead ballast. Captain Skliar's creation proved to be a rugged baby. Its wings are designed to withstand a four-G load at 65 mph.

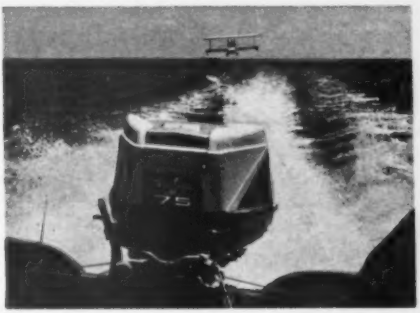
While being towed, the glider gets up on its skis at ten mph. Any small boat capable of 35 to 40-mph speeds can be used to tow it. When not in use, it can be kept in a one-car garage.

The glider can be flown by a student pilot with solo experience, claims Skliar. Most flights are made with 200 to 400 feet of towline which allow an altitude of from 130 to 240 feet. Maximum altitude is around 600 feet on 1,200 feet of cable. Top speed is about 60 mph.

**The glider would lend** itself to kit-type construction, according to Skliar, who has filed a patent application for his fun craft. •



**GLIDER** stands up on its skis at about ten mph when it is in process of taking off.



**ALOFT!** Towline hook is designed to drop rope if too much slack develops in line.

**HAND-PADDLING** Bill Skliar after soaring adventure. Craft has been up to 600 feet.

**OUTDOORS**
**with**
**W. Scott Duncan**

# BASS FISHING IN THE WINTER

BASS fishing has only recently become a year-'round sport. In 1941 only a few states let you fish for bass during the winter. By 1951 it was 19 states; today you can catch bass all winter in 34 states.

**The states that still** say no are all in the north. They are the New England states, North Dakota, Washington, Iowa and the Great Lakes states except for Illinois, Indiana and Ohio—14 in all. The conservationists in those areas explain that the growing season for bass in those parts is too short to warrant lengthy open seasons.

How do you fish for bass during the cold months? Summer and fall methods no longer pay off, even in the south, once the cold sets in. The reason is that in winter the lakes are cooler at the surface than below and the fish sink to lower, warmer levels. Deep-water fishing requires its own lures and techniques.

**In states north** of parallel 40, to fish successfully for bass you must use two methods. Where ice covers the lakes and rivers, you cut holes in the ice and fish through them with live bait or jig spoons and jigs. Where there is open water, bass are most successfully caught by trolling deep, jigging and still-fishing with live bait, fishing over sunken bars and ledges and in holes near drop-offs.

South of parallel 40, bass waters seldom, if ever, freeze over for long. There deep trolling and jigging is the rule.

South of parallel 40 there are thousands of good bass fishing waters. Among the [*Continued on page* 160]

**WINTER BASS: the author and Will Glen, his guide, with largemouths taken in Salt Run, Florida. January, February and March are fine bass months there.**

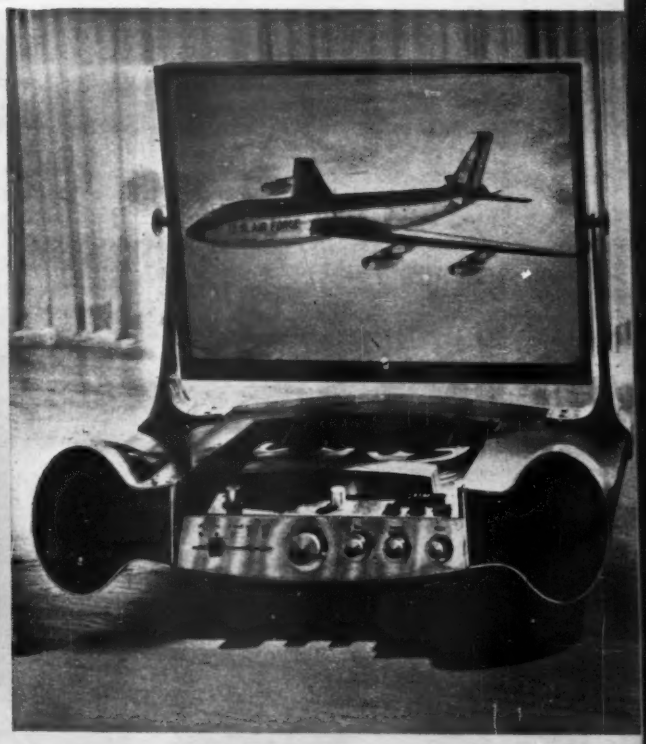
# COMING SOON....

# TV TAPE RECORDERS

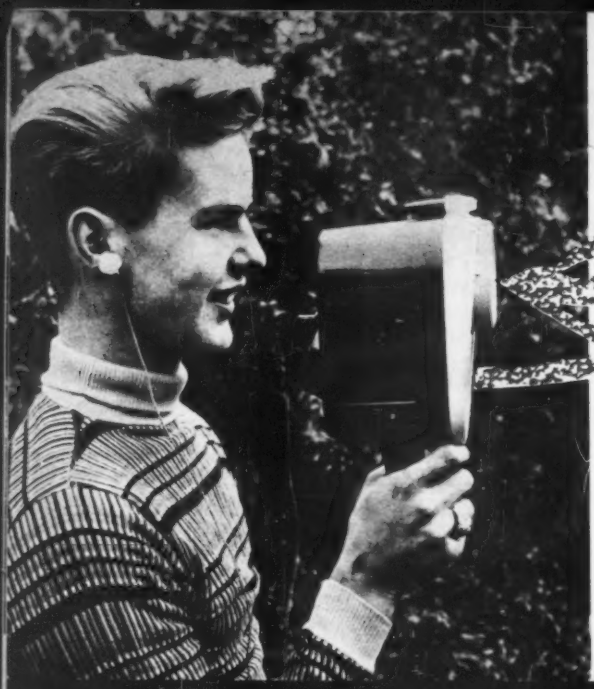
WOULD you like to record your favorite TV program—both sound and picture—on tape for future viewing? Well, the debut of the home TV tape recorder is not far off. The eye-catching designs on this page are experimental mock-ups by Syracuse University students. They were created to show in exact detail what the commercial TV tape recorder might look like. The sets are designed around the circuitry of the Ampex VR-1000 network video tape recorder. But for home use, the electronic components have been modified and miniaturized with the aid of the General Electric research staff. The home TV tape recorder comes one step nearer! •

TV TAPE recorder-playback console by Robert Clowe records sound and/or picture for playback.

STRIKING unit designed by Albert Straus weighs about 150 pounds. Clowe console is 300 pounds.



MOCK-UP by designer Edward Meisner. Components have been miniaturized without sacrificing screen size.



**INFRAPHONE** sends voice messages hundreds of yards on a beam of invisible infrared radiation. Unit is aimed like a camera at other operating unit.

# INFRARED

A NEW type of walkie-talkie communications system that uses infrared radiation as the voice-carrying medium has been developed by Infrared Industries, Waltham, Mass. Called the Infraphone, the device is held in the hand and aimed at another unit within line-of-sight; an infrared beam carries the conversation between the two units. Both phones are identical transmitter-receivers. Equipped with pistol-grips and rifle-style sights, the 26-ounce phone is easy to hold and to aim.

**Power for the** Infraphone is from three flashlight batteries. The beam that carries conversation between the two

**TOP aperture is the beam receiver; bottom one sends infrared beam carrying voice.**

**MIKE is at back. Vocal sounds that are spoken into mike modulate infrared beam.**

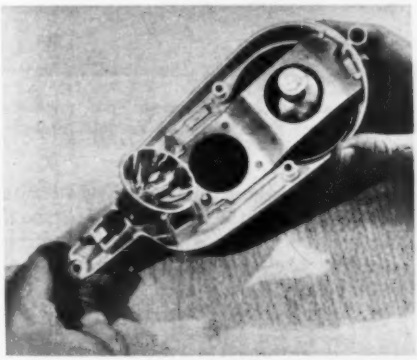
RECEIVING and sending go on simultaneously over two beams, eliminating "over to you" procedure. Earphones keep the conversation private between users.

# WALKIE-TALKIE

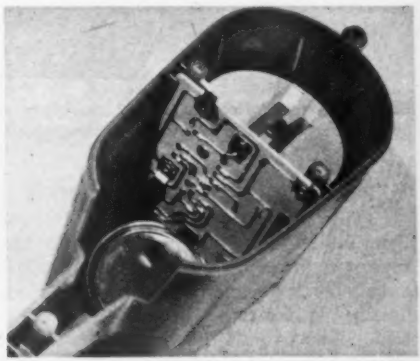
units can travel through closed windows and can be sent around corners by being reflected off an angled mirror. In bright sunlight the Infraphone's range is about 1000 ft. At night the range is 1500 ft.

**The makers intend** to market Infraphone through electronic supply houses, hobby shops and sporting goods stores. They foresee many applications including ship-to-shore, civil defense and possibly by the Armed Forces.

**Infraphone is not subject** to FCC regulations and no license is required to operate. It is presently being sold by Lafayette Radio, Jamaica, N. Y. Price is $39.95 for two units. •



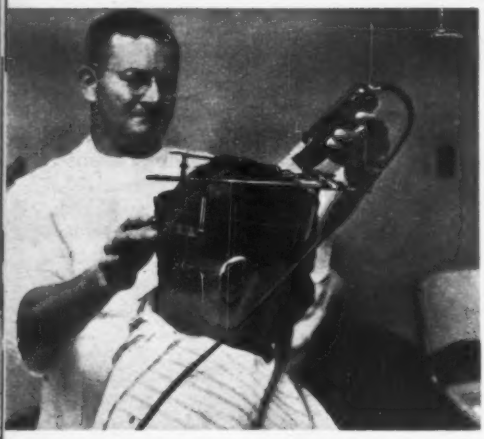
SOURCE of light at bottom is a flashlight bulb radiating through the infrared filter.



SOLID state (no tubes) device uses a printed circuit transistorized amplifier, three D cells.

# FOR THE PERFECT FLATTOP

**FLATTOP devotee examines device that did job. Barber is Norton, the proud inventor.**

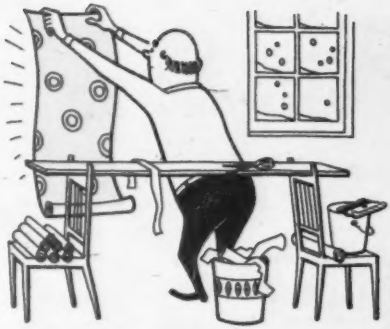


**MOWING on horizontal plane, rig gives a good, safe clipping to flattop connoisseur.**

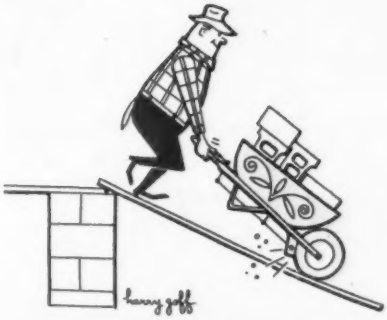
**RIG does flattop cutting in ten seconds, cuts haircut time from 25 to ten minutes.**

YOU don't have to have a flat head to get a flattop haircut, men! Barber Dennis A. Norton of Huntsville, Ala. has invented a device that fits right on the enthusiast's bean and insures a perfect flattop. It consists of a leather band which fits around the head. It has four adjustable metal posts and two side tracks, one above each ear. A double bar mount for the clippers slides back and forth as they mow. The mounted clippers prevent any jogging which could result in a zig-zag cut. Thus when a customer steps down from the chair his head is not only flat on top, it's also horizontal, man! •

**HINGED SALT SHAKER** top with prongs that go into perforations to clear them of salt. John Potsileko, Long Beach, Calif.



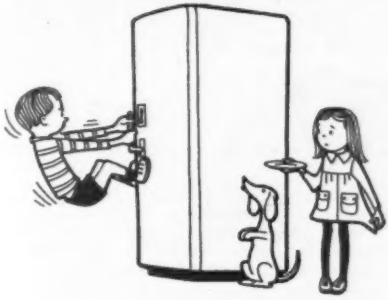
**INSULATING WALLPAPER**, backed with aluminum foil, to help insulate while decorating old houses. A. Tabak, Melrose, Mass.



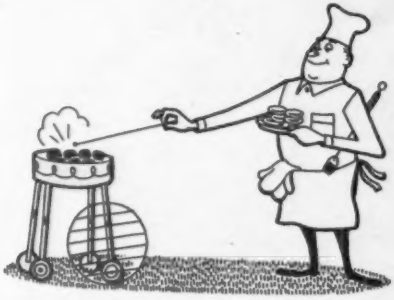
**BARROW HANDBRAKE**, bike style, to prevent sliding and spilling when carrying heavy loads. Mike Rice, Ben Arnold, Texas.

# INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description on a postcard to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y. Each one printed will be awarded $5. Entries not selected cannot be acknowledged or returned.



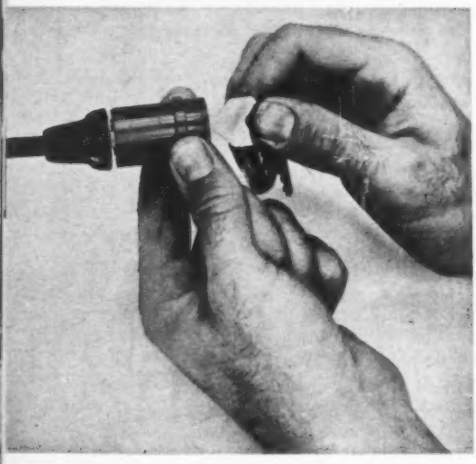
**REFRIGERATOR LOCK** to foil the raiders while Mother isn't standing sentry duty. Maurice Peacock, Jr., King of Prussia, Pa.



**CLEAN BRIQUETTES** coated with a flammable substance for clean hands, easy kindling. J. F. Thompson, New Kensington, Pa.

POWER-BLOK will prevent kids from plugging in your power tools and hurting themselves.

# LOCK FOR *POWER TOOLS*



UNIT is locked with key. Power-Blok can also be used on appliances, radios, etc.

POWER-BLOK slips onto the prongs of a power cord—two or three-prong jobs—and is locked firmly in place with a key. The device prevents anyone—especially the kids—from starting your power saw, lathe, etc. Hurd Lock & Mfg. Co., Almont, Mich. $1.49. •

**WIN $50**

**MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.**

# BIG BOOM in U. S. stamps

By Lester David

FIFTEEN million stamp collectors—that's the happy estimate, and with that many people soaking stamps off envelopes you can readily see why philately (stamp collecting) is a good business for dealers, book publishers and governments. But the pros (who frequently started out as amateurs) aren't the only ones making dough out of stamp collecting. Through shrewdness, sheer luck and sometimes a combination of the two, amateur stamp collectors keep finding that their stamps are worth money—real talking money.

For instance, a paper dealer was carting piles of old papers away from a

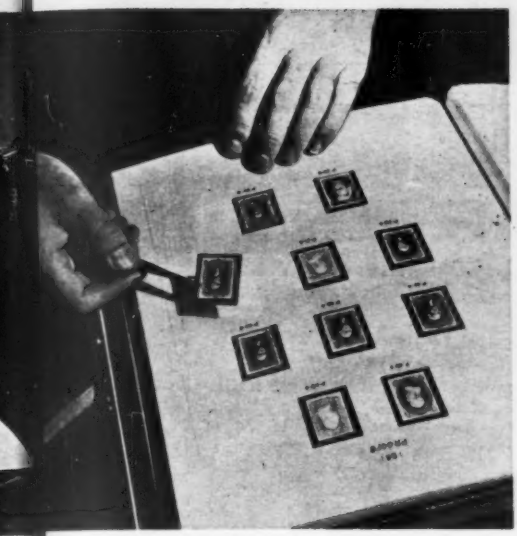
**VARIETY** of stamps is shown in this U.S. periodical stamp next to tiny Dutch job.

**TWEEZERS** should always be used when handling old or costly stamps. Grip at edge.

**BERNARD HARMER** of H. R. Harmer, stamp dealers, uses lens to verify stamp details.

Philadelphia bank one day when he noticed some queer-looking stamps on a bunch of yellowing envelopes. On a hunch he pocketed the envelopes. Later he found, from a dealer, that the stamps were St. Louis provisionals, issued by the St. Louis postmaster back in the 1840s. Their value: $100,000. Two janitors in a Kentucky courthouse found $23,000 worth of provisionals in the wastepaper one day. A man buying $1 stamps in a Cleveland post office noticed that one of the sheets had no horizontal perforations. It was a manufacturing mistake that made the stamps rare—so rare that a dealer who bought the sheet could break it up into blocks of four and sell them for $1,000 a block. Finds like these are not so very rare, according to stamp expert Ernest A. Kehr, who says that similar cases are being reported in the philatelic press with "amazing frequency."

**Of all those 15,000,000** collectors only a handful start out looking for a gold mine, of course. But even those who collect for mere fun can feel that they aren't wasting time and money on a hobby that will never repay them. Stamps have value, and their value increases with age. A window cleaner who once bought $100 worth of Kansas-Nebraska overprints was able, 15 years later, to buy his bride a mink coat with them; their value had increased to $3,000. Anybody's collection, if put together with reasonable judgment, can be sold for a profit or used as collateral



**STAMPS can be mounted in different ways. These are hinged to black paper backing.**

**STRONG LIGHT reveals printing irregularities and watermarks imprinted in paper.**

on a loan.

The big new thing in stamp collecting, as in antique collecting of late years, is Buy American. Many issues of Yank stamps have zoomed 500 to 750 per cent or higher. A set of Graf Zeppelin stamps that sold at face value in 1934 is worth ten times that now; a 1924 Huguenot-Walloon issue has doubled in value in the last five years. The big rise in value is due to the tremendous number of new collectors—a good 5,000,000 have joined the philatelic ranks since World War II. More are expected in the years to come. For those who are starting out as collectors, here are the big questions and answers, as elicited from experts among collectors and dealers:

*What equipment do you need to start?*

**First you need** an album. Four bucks buys one that will hold all the issues ever put out in the U. S., with stories of their historical background. Then you need stamp tongs to grip the stamps, which deteriorate rapidly if handled repeatedly. Good tongs cost about a dollar. Stamp hinges are the standard way to fix stamps in the album without lessening the value of the stamp; the hinges sell for a few pennies a thousand. A fancier way is to put the stamps in "mounts"—transparent envelopes with gummed backs. A magnifying glass is essential, too; collecting stamps without one, says one oldtimer, is like "going into a cave without a flashlight."

*What books do you need?*

You need catalogues. Leading catalogues for U. S. stamp specialists are the first volume of Scott's Standard Postage Stamp Catalogue, Scott's United States Stamp Catalogue Specialized and Minkus Publications' New American Stamp Catalogue. There are others, and all are available at stamp dealers.

**Some good books offering** guidance to the collector: Postage Stamps Of The United States, 1847-1959; Cat. No. P4 10:959, U. S. Government Printing Office, Washington 25, D. C., $1. Romance Of Stamp Collecting by Ernest A. Kehr, Thos. Y. Crowell Co., N. Y.; My Hobby Is Collecting Stamps by Ernest A. Kehr, Hart Book Co., N. Y.; The Complete Guide To Stamp Collecting by Prescott H. Thorp, Minkus Publications, N. Y.

*Where do you get stamps?*

There are 5,000 stamp dealers in the U. S. See the [*Continued on page* 162]

COVER STORY

# *Detroit's* NEW CAR ENGINE

IT won't happen overnight but in the not too distant future many of Uncle Sam's rugged little trucks and other special purpose vehicles may be powered by the equally rugged little gas turbine engine shown on the cover of this issue. And eventually this miniature powerplant may be adapted for sports cars and then for general automotive use.

Williams Research Corp. of Walled Lake, Mich., developers of the new tur-

**PRESIDENT Sam Williams displays small gas turbine to Sgt. Roger Bernier of Army Ordnance. Tiny engine is being field-tested.**

**ENGINEER Clay Huben makes final adjustment on 50-lb. mill. It turns out 75 hp. an incredible weight-power ratio.**

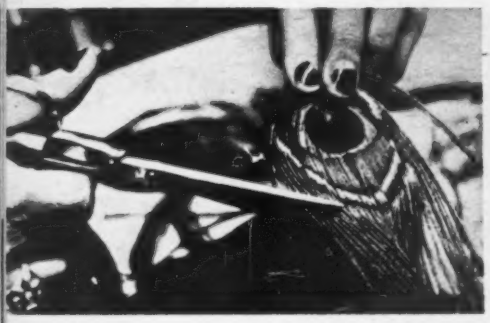
bine, is even now installing one in a Ford-built passenger vehicle under an Army experimental contract. Weighing only 50 pounds, the Williams' turbine develops 75 horsepower! But the main attraction at this moment is that it would simplify the Army's supply problem because it runs beautifully on military JP-4 and JP-5 fuels, too heavy for normal gas engines.

**What is a gas turbine** and what makes it run?

To simplify, the gas turbine uses energy from compressed air and burning fuel to drive rotor blades which in turn drive an axle to transmit the power. Actually, air is taken in through the intake at the front and, with a centrifugal compressor, is compressed to four times normal atmospheric pressure. Fuel is burned continuously in the compressed air. The resulting high pressure gases are then expanded through stationary nozzle blading.

These gases are then directed through rotating blading of the first stage turbine wheel on the compressor shaft, its power driving the compressor. As the gases pass on through, the remaining energy in the gases drives a second turbine connected to [*Continued on page* 164]

# FEATHER MERCHANT



EYES from peacock feathers are trimmed out to decorate all kinds of things—for example, high-fashion footwear for women.

WHITE TURKEY feathers are dipped with black dye in the Weinstein atelier; trim the ends and—pouf! Injun eagle feathers!

MONEY MAKING IDEA

TEN bucks and an idea put Joe Weinstein of Hollywood in the fancy feather business. The idea was buttonhole flowers made of colored feathers. Not an entirely new idea; in Biblical times feathers were popular adornments, and years later Joe was to sell a million feathers to Cecil B. DeMille to doll up The Ten Commandments, an Old Testament spectacular. But a good idea all the same. Joe bought some white chicken feathers from a poultry market and used the the rest of the tenner on dye and other simple makings. The boutonnieres took the public fancy and soon Joe had ten girls making them for him. After that he began to get calls for fancier

[*Continued on page* 165]

BONNETED Joe examines shipment of pheasant tailfeathers.

SPECIAL FEATURE . . .

# RADIO-CONTROLLED MODEL AIRPLANES

By R. Vanzant

RADIO-CONTROLLED model airplanes can do almost anything the big planes do. They taxi down the runway alone, take off, come in for touch-and-go landings and perform all manner of aerobatics. The new multi-channel jobs can be rigged to carry aerial cameras, drop parachutes, tow gliders and do skywriting.

Most of the planes measure only four to six feet in wingspan. They are fragile affairs of balsa, glue, nylon and dope, powered by a ¼-hp, glow-ignition engine. But their resem-

**LOCKUP:** transmitters not in use could accidentally interfere with competing models.

**ELASTIC** bands attach wings to model, will release them on impact in case of bad landing or accident.

**INSPECTION** is pulled again and again as R/C ops sweat out their turns.

blance in the air to man-carrying aircraft is sometimes uncanny. Recently a hobbyist was flying a model Cub at a small airport when the plane developed engine trouble and dived in. A few minutes later the phone rang in the airport office. A citizen living nearby inquired anxiously who was flying the Cub that just crashed and was he badly hurt?

**It is undoubtedly this** realism in flight that drives many hobbyists to build model after model, changing and adapting the plane and equipment to get better performance.

Two little gadgets that give the R/C (radio-controlled) plane its maneuverability are the radio receiver and transmitter, which range from the relatively simple single-channel radio to the complicated ten- or 12-channel outfits. The more channels, the more aspects of flight that can be controlled. The single-channel rigs are usually equipped for rudder and motor speed control; the typical eight-channel outfit has controls for elevator, rudder, aileron and motor speed.

The receiver, which is fitted into the fuselage of the plane, just back of the engine, gas tank and batteries, is usually about the size of a pack of cigarettes and may weigh as little as two ounces. The hand-held transmitter is about the size of a cigar box and weighs about four or five pounds.

**Both transmitter and receiver** are battery-powered and the switch of each must be flipped to the "on" position before each flight. The radio signal is usually a tone of audio-frequency transmitted by operating buttons or levers on the transmitter. In single-channel equipment, the transmitted signal causes the receiver to close a switch, commonly called a relay. This, in turn, triggers the operation of an actuator or escapement, which moves geared arms connected directly to the surface that is to be moved on the plane. In multi-channel equipment, the principle is the same but the tones transmitted vary in pitch for each control movement de-

**NATIONAL MODEL MEET** at the Naval Air Station, Dallas, July 1960, was typical of these peak events for plane modelers. Photos here show the contestants in R/C events—a few of those enthusiasts who came from 50 states, Mexico, Peru, Argentina and Canada. Meet was sponsored by Academy of Model Aeronautics and the Navy.

GLOW PLUG is hooked up to batteries, detached after the midget engine has started up.

EYES UP on his maneuvering model, a contestant handles his transmitter with a practiced hand, never glancing at it.

sired.

Most receivers are built to operate on one of the six "citizen's bands" between 26.995 and 27.255 mc. Although each radio operator is required to have a license from the Federal Communications Commission for these bands, it is issued free and without examination to any citizen over 18.

The beginning modeler can expect to spend a minimum of $75 to $100 to get started in his hobby. The experts unanimously advise all learners to start with a single-channel transmitter and receiver. These can be obtained for around $25 to $100, assembled, or in kit form for $18 to $50. The multi-channel outfits may sell for as much as $300 to $400.

**Other equipment necessary** for R/C modeling includes, of course, a plane. This can be bought in a kit with pre-cut balsa, full-size plans and complete hardware. The kit planes come in many sizes, ranging in wingspan from about three to eight feet. The medium-sized, more stable plane is best for the learner. The price range is from around $5 to $27.50.

Next requirement is a glow-ignition engine. This is a single cylinder, two-cycle engine which is almost a miniature version of a lawnmower engine. To start the engine the glow plug is connected to a battery, an element in the glow plug becomes red hot and this ignites the fuel mixture when the propeller is flipped. After the engine is running the heat generated by the burning fuel keeps the process going and the battery is disconnected. The fuel used is composed principally of alcohol and castor oil. These engines cost from $4 to about $45.

The next thing needed is a control unit, which is most commonly an escapement or servo. The rubber band-powered escapement contains an electro-magnet that stops a crank arm in given positions and, through linkages, moves the control surfaces. The servo, used mainly on multi-channel equipment, is basically a miniature battery-powered motor. Escapements average about $8.95, servos about $13.

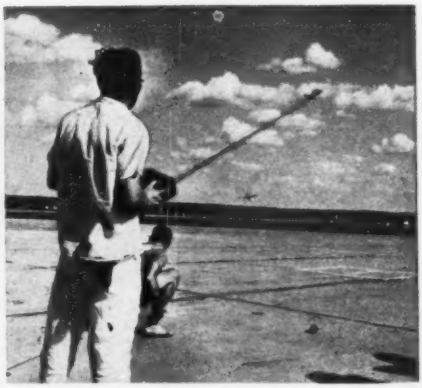
**Finally, there are several** miscellaneous needs such as batteries for powering the radio equipment and for starting the engine, and a few pieces of testing apparatus for testing voltage.

Another requirement for R/C flying, not easily come by in some city areas, is a flying field. Some model clubs rent flying privileges from a farmer, some are lucky enough to have a small airport nearby where, at specified hours, they can use an idle runway.

Most R/C hobbyists are protected by insurance which covers any injuries or damages caused by their planes in flight. Such incidents are luckily rare.

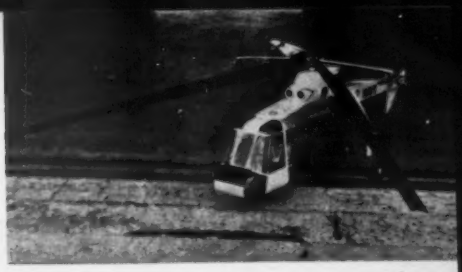
There are now over 200 R/C clubs in the U. S. and their members each year

**AT TAKEOFF this R/C model is dwarfed by full-sized men and the desert of concrete.**



**IN FLIGHT over horizon, model takes on a remarkable resemblance to full-size plane.**

P51 MUSTANG won in scale-model class. Builder: W. J. Murphy of Hawthorne, Calif.



SIKORSKY S64 helicopter crane has complete performance—all under radio control.

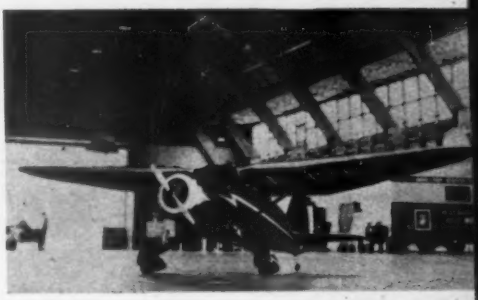
PIPER CUB built from plans in AMA magazine took 30 months. Engine is homebuilt.

take part in many intra-club and regional contests. The peak competition is the National Model Airplane Championships, which include a special R/C division. The Nationals are always held on a naval base and are sponsored jointly by the United States Navy and the Academy of Model Aeronautics, the official organization of all model airplane flyers in the United States.

Perhaps the most exciting R/C events at the Nationals are the multichannel flights. In the finals the experts are permitted to perform any of the maneuvers of the aerobatic schedule of the AMA, including loops, spirals, spins, figure eights, Immelmann turns, wing-overs, rolls, stalls and inverted flight.

**R/C model clubs all welcome** visitors and the members are generally outgoing fellows who will help a beginner with any problems he may have. Some clubs have a "big brother" arrangement whereby a beginner and an experienced hand at R/C are teamed together at some flying events. The first advice that these seasoned flyers have for beginners is "Keep it simple"—the novice should stick to single-channel equipment and a stable training-[*Continued on page* 163]

CESSNA OE-2 R/C model by R. W. Wischer, Delafield, Wis., against hangar background.



STINSON RELIANT model was built by Dr. Alejandro Elizondo, Mexico City, Mex.

# ICE PLOW

## FOR THE SEAWAY

KEY: Electric rotary saws (1) mounted in pivoting frames (2) cut ice into narrow ribbons, and chippers between saw blades break them into chunks. Chunks move along hinged ramps (3) which can swing upward to close hull and form a reinforced bow. Chunks go into chute (4) and ice crusher. Ice chips then enter blower, are expelled from pipe (5). In areas around docks, ice would be temporarily stored in hold (6). At sea, twin frames are uncoupled (7), swung aft on pivots (8) and carried in deck rests (9).

FRANK TINSLEY '60

**By Frank Tinsley**

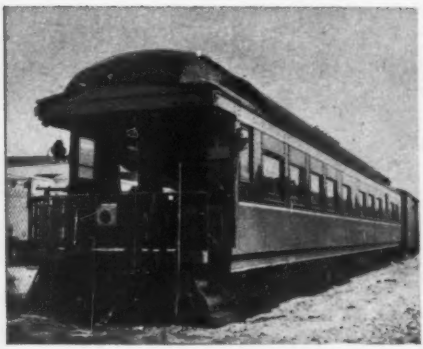
THE multi-million dollar St. Lawrence and Great Lakes Seaway has created a new American seacoast and turned inland commercial centers like Detroit, Chicago and Duluth into deepwater ports. It has also opened scores of lesser U. S. and Canadian cities to world oceanic trade. However, due to the severe winters, these areas are sealed off to Seaway traffic from December to March each year. This necessitates storing of supplies before the ice freezes and results in monumental costs that could be eliminated if these ports were ice-free year-round.

**Conventional icebreakers** are not the answer. While these sturdy ships do break up ice, they leave behind a mass of cracked pieces that tend to freeze again when the temperature drops. As a result, the icebreaker's job is an endless one.

This problem has long fascinated [*Continued on page* 166]

LOUNGE view shows the spaciousness and comfort—note bar—enjoyed by lucky riders.

# THEY LIVE IN A RAILROAD CAR



CAR (above) was built in 1926. Master bedroom (below) sports red velvet bedspread.

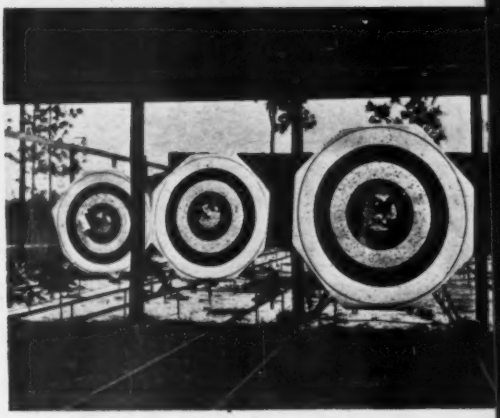
FINLAYS are standing on the brass-railed observation platform of their private car.

WELL, Betty and Tad Finlay of North Hollywood, Calif., don't exactly *live* in their private railroad car—but they're tempted! The Finlays have long been railroad buffs. They bought their private car and spent $35,000 restoring it. They use it for touring—at a cost of 18 fares! •

# IT'S NEW!

A NICE SERVE—and just the shot she needs to practice returning—is coming up from the new Australian tennis coaching device. Machine fires 26 balls a minute with extreme accuracy.

**NIGHT VISION device links scope with an infrared beam. Whoo-oo-oo-oo makes it? Intl. Telephone and Telegraph Corp., L.A.**



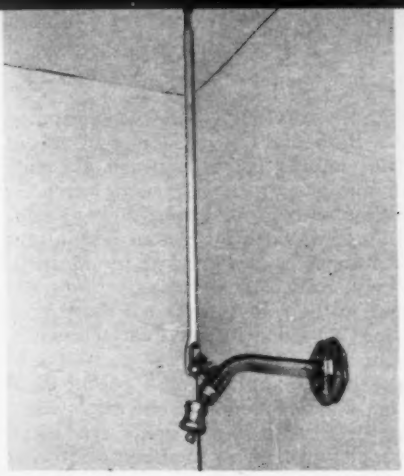
**RETRIEVABLE TARGETS on tracks plus endless cables bring arrows back to bowmen at Sherwood Archery Range, Orlando, Fla.**

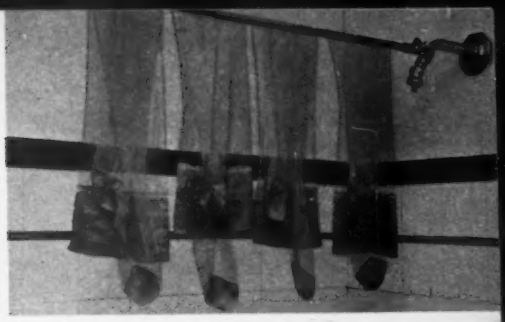
# IT'S NEW!

**BAKING BY PHONE:** she can control any electric appliance by phone and Westinghouse relay system—which means she can put dinner in the oven, turn it off from her Canasta Club.

**INKLESS FINGERPRINTING** developed by Chance-Vought's Electronics Division provides an instant view of print pattern.

**SIMPLE SIMONETTA?** Not so dumb, Dad: that wind-up bass gives her a real fight when it's hooked. From Gong Bell Mfg. Co.

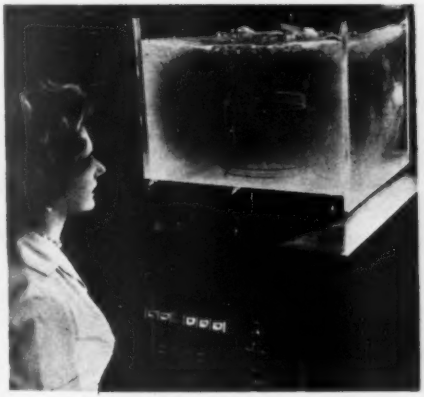




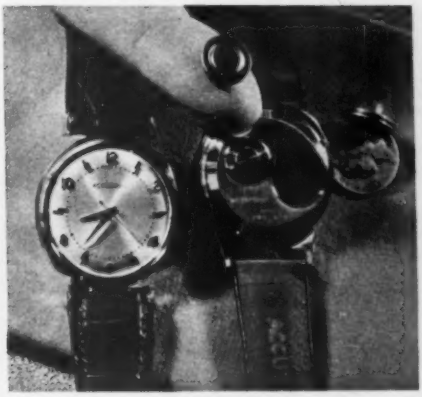
DRIP-DRY enthusiasts find this telescoping rack great for home or travel. Easy to attach (no tools), it folds out of the way when not in use (left), pulls out to 34 inches for drying (above). Goode Products, $1.98.

ELECTRONIC LECTURE: teacher on sound movie screen teaches, quizzes; student answers on buttons. Williams Research Corp.

GAS GUNS: Austrian $CO_2$ rifles for army training and sport. Gun holds 60 bullets, gas for 1200 shots. Right: gas refilling.



ROCKET TRACER (for planes, satellites, too) gives 3-D plotting of flying objects in clear gelatin. Chrysler Corp. manufactures device.

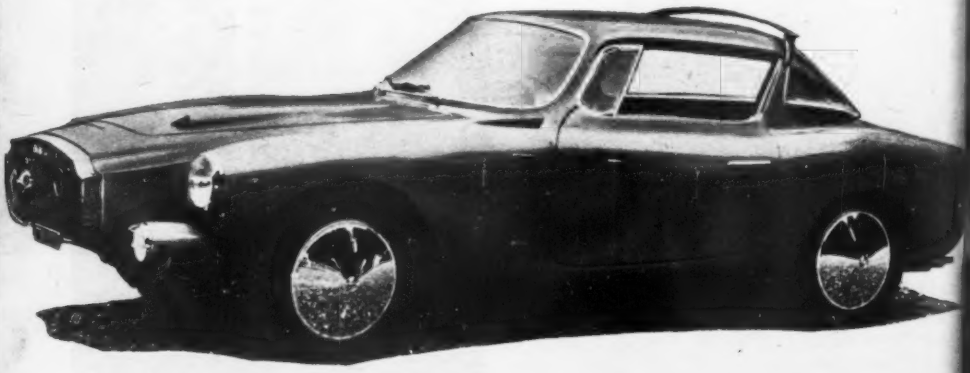


ELECTRONIC WATCH called Accutron runs on 1.3-volt mercury battery (shown on finger). The new Bulova ranges from $175-$2,500.

# LOEWY'S LATEST

***Features an experimental air foil aileron on the roof and a bumper that surrounds the grille!***

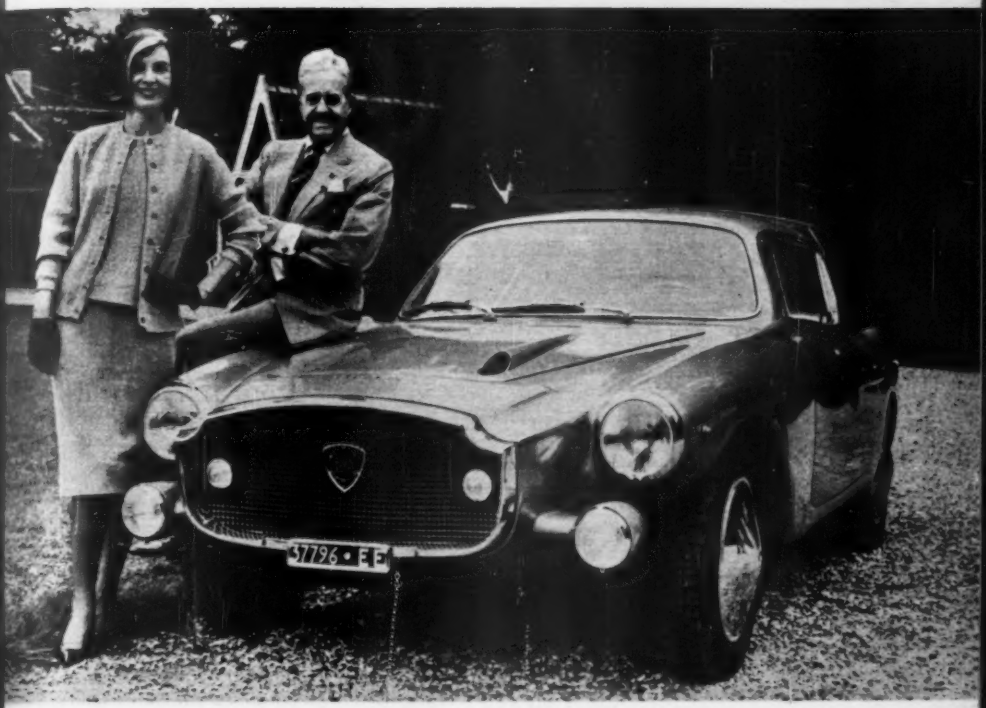
EYE-CATCHING is the design of Raymond Loewy's latest dream car. The striking rig is built on a Lancia Flaminia sport chassis and has a V6 engine with a four-barrel Weber carburetor and Nardi air-intake. The aluminum body was executed by Motto of Turin, Italy. An air foil aileron at the rear of the roof is designed like an airplane wing and its angle of incidence is adjustable to improve performance. Loewy has applied for a patent on it. The chrome-steel framework around the perforated intake grille acts as the front bumper. This member is attached to the chassis and, under shock, slides freely inside the aluminum shell of the hood. The spare wheel is concealed under the floor and is accessible by a pivoting panel under the rear bumper. •



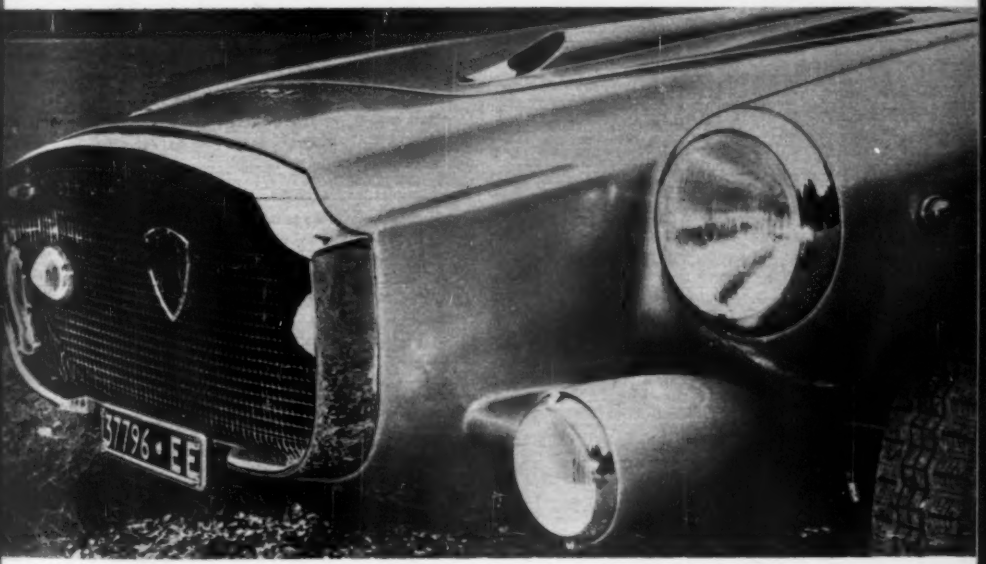
**BODY is aluminum with welded tubular steel frame in shape of a rectangle.**

**AIR FOIL aileron at end of the roof is expected to improve performance of the car.**

**BOB-TAILED rear is extremely simple, has recessed lights, bar bumper, dual exhausts.**

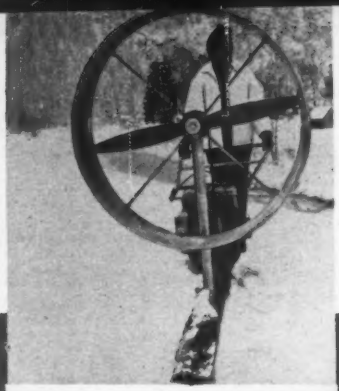



MR. & MRS. Raymond Loewy with new car that features off-center air scoop to feed carb.



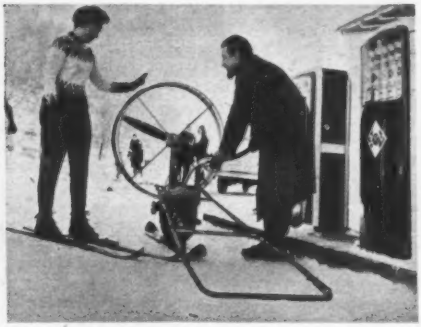

CHROME-STEEL framework around grille is bumper. Fog headlights are outrigger in style.

# NOW YOU CAN SKI UPHILL!



OVERSNOW rig operates via large propeller, small engine.

SKI PONY invented by German Joseph Niklas pulls one or several skiers uphill or on flat.



POWER is supplied by lightweight five-and-one-half-hp motor. The Pony weighs 80 lbs.

MOTORIZED skis can travel at 30 to 35 mph on level ground. Vehicle costs about $200.

By James Joseph

EAGER skiers, riding the double-chair lift up Oregon's Mt. Hood recently, wiped the frost from their goggles and stared. Below them a solitary skier was zooming uphill in his comfortable heater-warmed, seven-hp snow scooter which beat the lift to the summit.

**In Germany recently,** European skiers watched the Ski Pony, a five and one-half-hp, propeller-driven rig, pull its rider up a snow-covered slope at 30 mph.

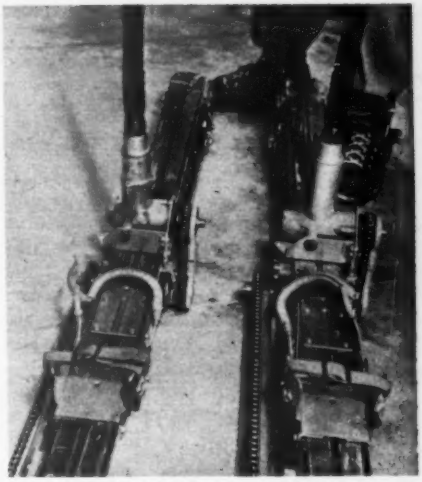
This revolution on the ski slopes of the United States and Europe is giving a big boost to the winter sports clan and promises to bring even the loftiest peaks within the reach of the rankest novice without the laborious "herring-boning" skiers have been using for centuries to get uphill.

Here in the United States the power skis conceived by Cal-Tech engineering student Stanley Van Voorhees, come closest to automating the average skier. Van Voorhees' patented skis are driven by a back-packed three and one-half hp gas engine through flexible drive shafts. The skis are conventionally flat for going downhill but are rigged with cleated traction belts on their reverse sides. Going uphill you ride on tracks; downhill you glide on the regulation flats. The power skis will climb 25° to 30° slopes at four to eight mph. Over-snow they'll do 10 to 15 mph all day on a cupful of gas.

**Aerojet General Corp.** even has experimental rocket-powered skis in the works. This system takes the form of a flying suit called the Aeropak which was originally designed to lift infantrymen across rivers and over mine fields. Powered by two steam-generating rockets, the flameless 70-pound flying suit-harness includes guidance controls and provides a minute's jet-propelled flight in its twin boosters. A 20-second rocket flight packs enough power to boost a 240-pound skier a half mile. Improved models of this unit will weigh about 35 pounds.

Pocket Lift is another booster designed for the skier who likes to pick his own ski slope. The unit was created by

**POWER SKIS of Stanley Van Voorhees have a back-packed engine, flexible drive shafts, are shown in position for the downhill run.**



**CLOSE-UP shows belt-driven tracks with flexible drive shafts attached. Throttle for gas engine is connected to ski pole.**

**ELIASON K-12 is two-seat, nine-hp motor toboggan with air-cooled engine. Cost: $995.**

engineer Joseph Leo Hausn of Kartan, Austria. It weighs less than 150 pounds and will fit in any compact car's trunk. At the ski slope, you jack up the car's rear wheels and block the front ones. The rear tires run on rollers. The rollers power a drum wound with lightweight steel cable. Spaced along the cable are convenient handholds.

**You then anchor** the Pocket Lift's sheave to a hilltop tree or drive an anchor stake, slip your car into gear and, auto-powered, zoom to the summit. Estimated set-up time is ten minutes for the unit and the cost is said to be "a few hundred dollars."

The Ski-Doo is a versatile skier's aide. It's a brand-new rubber-tracked and ski-fitted snow sled that packs eight hours of fuel in its four-gallon (Imperial size) tank. Its designer is Bombardier Snowmobile, Ltd., of Valcourt, Quebec. The Ski-Doo has a heater-warmed cockpit and is powered by a one-cylinder, seven-hp gas engine. The 335-pound snow crust skimmer seats two and can run over snow that would scarcely support a skier's weight. The price is $950 in the U. S., $895 in Canada.

**TRAIL-A-SLED does up to 100 mph on three skis. It can be car-towed. Price: $1,795.**

The Eliason K-12 is another motor toboggan that's giving slalomers a push up high-country slopes. Powered by a nine-hp air-cooled engine, it combines a wide main track with outrigger skis which also substitute for running boards. The two-passenger rig does 25 mph over flat terrain on a gallon of gas.

**SNO-TRAVELER made by Polaris Industries, Inc., sports ten-hp Kohler gasoline mill.**

**SKI-DOO climbs 30 per cent grades, does 25 mph with a nine-hp air-cooled engine.**

Four-Wheel Drive Auto Co., Ltd., of Kitchener, Ontario makes the $995 sled.

Trail-A-Sled is a wind-whistling slope racer that will travel at up to 100 mph. It is powered by a push propeller and a 100 to 150 hp Lycoming aircraft engine. The sled rockets along on foot-wide fiber glass skis. Retractable trailer wheels convert it quickly for car-towing. Four people can ride this speedy sled which will take a 25 per cent slope with ease. The vehicle was designed by Glen E. Gutzman of Crosby, Minn.

**This year's skiers** at the nation's 400 resorts that cater to an estimated four million outdoor funsters will find that the trams, tows and lifts are faster and fancier. A new T-bar lift at California's Edelsweiss Ski Resort can lift 1,200 skiers an hour at better than 12 feet per second.

No less than 300 trams and tows shuttle slopes coast-to-coast. Colorado's famed Aspen highlands are latticed with 13 boosters which handle more than 5,000 skiers an hour. Aspen claims the world's longest double-chair lift—one and three-quarter miles.

Dogpower is also competing with horsepower on some summits. At Aspen you can hire a team of imported Alaskan Huskies from $25 and up per day. Chauffeured by an old-hand who knows the area, you can skim along under six to eight dogpower and take your pick of the peaks.

**Donner Pass, Calif.**, has an aerial tram that neatly solves the problem of ski storage. Each of Donner's 12 six-passenger aluminum and steel gondolas has racks for skis outside the cars. Rubber tires, suspending cars via one and three-eighth inch steel cables, offers a virtually noiseless ride.

That's the story on the big boost for skiers this year. Take your choice—horsepower, dogpower or jet propelled power—it all adds up to less work and more fun for winter sports fans. •

**BOMBARDIER Model M can do 25 mph with 115-hp Chrysler mill. Price: about $5,800.**

**TUCKER Sno-Cat seats up to eight passengers. It has 95-hp engine. Cost: $8,136.**

# PUSH-BUTTON FAUCETS

PUSH-BUTTON faucets are replacing conventional fixtures in many new homes today. This remote-control plumbing operates by solenoids—electrically operated valves. The system is called Ultraflo.

**There can be as many** as five color-coded buttons at the sink or on the wall. You push the H button for hot water, C for cold, W for warm, all at moderate flow. The fourth button is OFF and the fifth one is for a Fast Flow of water.

In the Ultraflo system, house current is reduced to 24 volts by a transformer in the control panel. This safe, low-voltage current is carried from the push buttons to the solenoids that control the valves in a panel near the water heater. When you touch the H or C button, a solenoid opens a valve between the hot or cold water source and the pipe to the sink. Touch W button and both open. As the water flows on its way it goes through a flow control valve. This one has no solenoid control but has been preset at installation time to the rate of flow and temperature desired. A second valve, in another short line paralleling this one, adds to the flow of water when it is opened by its solenoid. This is activated by the fifth button. The OFF button simply cuts the current to all solenoids, closing the valves.

In the lavatory, where fast flow isn't needed, only two valves are required. A tub-shower combination would need two connections between the hot water source and the line to the shower as well as one for the cold water for a choice of temperatures.

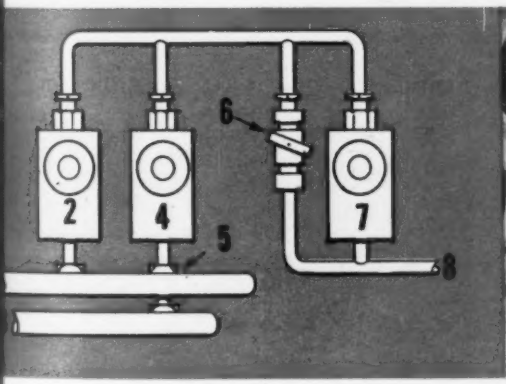
**Ultraflo adds a neat** and modern note in the home, and the end of washer replacements. It also offers the convenience of pre-set water temperatures and reduces waste of water.

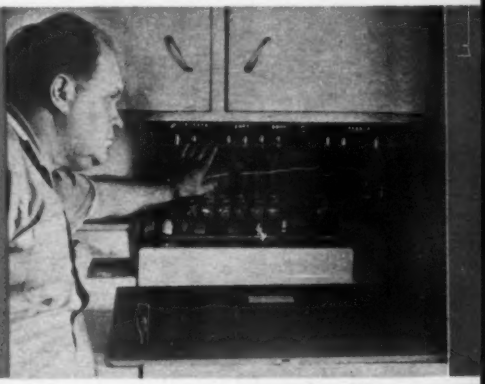
The maker, American Sanitary Manufacturing Co., Abingdon, Ill., estimates that Ultraflo will add no more than $50 to $100 to the cost of a new home. It would cost more in an older dwelling. •

*—Darrell Huff*

**BUTTONS may be placed anywhere within easy reach. At left is a typical bathroom arrangement with a sidewall control panel. Only four buttons are used: Hot, Cold, Warm and Off. At right is a kitchen set-up in which the buttons are recessed in the sink.**

HOUSEWIFE pushes five buttons mounted over sink for Hot, Cold, Warm, Fast Flow and Off.



HOT WATER (1) passes through valve (2); cold water (3) through valve (4). Flow control valve (5) regulates flow and temperature of warm water. By-pass valve (6) is always open. Valve (7) opens for Fast Flow to sink (8). Right, typical valve set-up installed in house.

# McCAHILL TESTS

PONTIAC offers wide choice of engines and options. Tom's test car had 303-hp engine.

"THIS is a greatly improved road car," reports Tom. The brakes are much better, too.

# THE '61 PONTIAC

***Performance and good looks, a hard-to-beat combination, make the Pontiac the top car in its class, says Uncle Tom.***

**By Tom McCahill**

**BONNEVILLE Vista four-door hardtop marks third consecutive year that Pontiac has emerged with brand-new suit. It comes with 14-inch wheels but you can order optional 15-inch rollers for it.**

I'VE tested Pontiacs so often on Daytona Beach and on coast-to-coast runs that I decided to give the '61 job a go on the west coast, allowing runs through the mountains, across deserts and in traffic tilts at Hollywood and Vine.

**Our test car,** which we picked up in Los Angeles, was a Bonneville Vista four-door hardtop with a single four-barrel carburetor. Right off the bat, after some rugged mountain descents, I can tell you that the brakes are much better than in former years. Also, there is less body roll around hairpin bends and curves than with either the '59 or '60 models. This is a greatly improved road car.

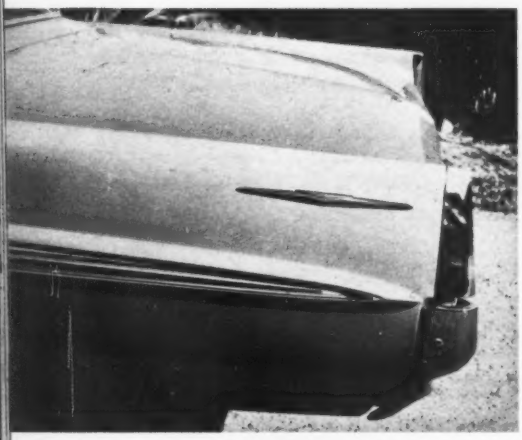
Much of our testing of the new Bonneville was done on the Los Angeles freeway where the Pontiac can whip out and take command with less effort than it takes to saw through yoghurt. Once in the mountains, the top torque flattens out the steepest grades like a sucker's wallet at Las Vegas.

**TEST CAR SPECS**

MODEL TESTED: **1961** Bonneville Vista four-door hardtop

ENGINE: **V8** cyls.; **389** cubic ins.; **303** brake hp; **425** ft-lbs max torque; **10.25** to 1 compression ratio. Bore **4.08** ins; stroke **3.75** ins. Fuel required: Premium. Standard axle ratio: **2.87:1.** Wheelbase **123** ins; length **217** ins; height **55.9** ins; width **79.2** ins; front tread **62.5** ins; rear tread **62.5** ins. Weight **4,109** lbs. Gas tank capacity **25** gals. Turning circle diameter **46.6** ft. Tire size **8.50X14.** PRICE (without optionals): **$3,040.** PERFORMANCE: 0-30 mph, **3.5** secs; 0-50 mph, **6.8** secs; 0-60 mph, **9.8** secs; 40-60 mph, **4.4** secs. Top speed **117** mph. All times recorded on corrected speedometer.

**BUMPER** frames a low, rearward slanting trunk and set of triple circular taillights.



**MILD** fins cap the rear fenders and terminate at the large U-shaped chrome bumper.

**RAKISH**, slim-line roof eliminates triangular rear side windows on four-door sedans.

The looks of the '61 models have been changed again, which makes it three years in a row without just trying to add feathers to an old hat. The '61 grille is a modernized version of the '59, and the fin and fender line treatment shows some '59 and '60 traces, but the entire package is truly brand-new. Overall length, width and wheelbase plus the highly-touted wide track have all been trimmed for '61. The interior and upholstery are tops in this class of car. The ride, even when I put more air in the tires, was as comfortable as a French featherbed on a snowy night.

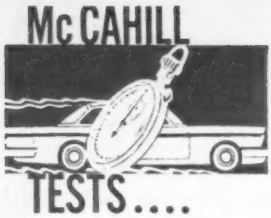
**Pontiac features** a 14-inch wheel (which I feel is *not* a feature) but you can also order 15-inch wheels and you can even specify a heavy-duty chassis which means tougher shocks and springing. However, the dealer will probably give you a fight on this special order stuff. The reason I say the 14-inch wheel (now almost standard in the industry) is poor is because it cuts deeply into tire life, and with the original equipment tires coming through on all cars today, this can become an expensive item long before the last car payment is made. Oddly enough, in some Workshop Manuals (including Pontiac's) in a little chapter under "Tires" the following statement appears—and I quote the Pontiac manual:

"Common opinion is that inflating the tire above the manufacturer's recommended pressure will give you increased tire life. This, however, is in error, as overinflation can be as bad as underinflation since it not only results in wear at the center of the tread but also makes the tire more subject to casing breaks."

**You may note that they** didn't say *how much* overinflation. Pontiacs that are used in racing carry at least 65 pounds. However, for the Safari station wagon with air conditioning, Pontiac recommends 22 pounds in front and 20 in the rear. Now, ignoring my opinion, if Pontiac and the other companies are right, then the tire-testing crews with the rubber companies are all wrong and this includes the racing divisions of both Firestone and Goodyear. One of the top engineers with [*Continued on page* 157]

"PRECIOUS," says MIMI, meaning the new LADYfingers Tool Compact for handy hausfraus. Designed by a famous glass and silverware stylist, the kit is made by William Thomas & Sons, Ridgefield, N. J., sells for $20. Chromium-plated steel-and-black-plastic tools come with hardware (inset) in a hang-up-or-carry plastic display case. Compacts come in several decorator colors.

# mimi




# THE OLDS F-85

***In my book it goes down as one of the top compact offerings, says Tom.***

**By Tom McCahill**

THE Lansing leprechauns, known as Oldsmobile workers, have jumped into the compact parade with an entry as hot as calisthenics in a steam room. The F-85, Olds' answer to the new small-car economy craze, is as neat as the larynx in a marble horse—well-styled, functional and a real challenge to big-car buyers.

**My test F-85 was** shipped to me via Ray Scott's Philadelphia dealership. After the first couple of miles behind the wheel I kept asking myself, "Why does anyone (well, *nearly* anyone) need a bigger car?" Like Buick with its Special and Pontiac with its Tempest, the Olds boys hope that a size compromise between "not too big" and "not too small" is what the public *really* wants.

**As any kid old enough** to rate a haircut knows, the Big Three have been making regular trips to the bank purely on the strength of their larger offerings. Most of them got into this compact rat race, not so much with profit in mind but as a defensive move—so that they wouldn't be left with the only daughter in town after the last man took to the hills. They would have been a lot happier if the public had just kept on buying their big, expensive-to-operate land barges.

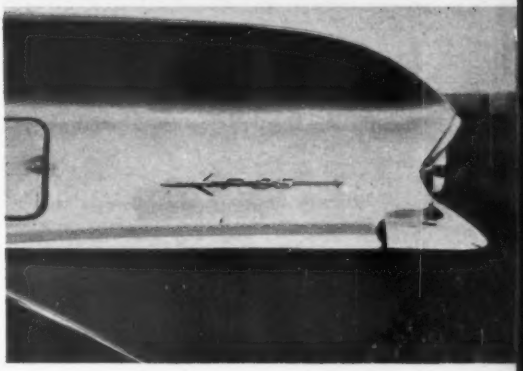
**THE F-85 is "well-styled, functional and a real challenge to the big-car buyer" according to McCahill.**

## TEST CAR SPECS

MODEL TESTED: **Oldsmobile F-85 four-door Sedan**
ENGINE: **V8** cyls; **215** cubic ins; **155** brake hp; **210** ft-lbs max torque; **8.75** to **1** compression ratio. Bore **3.5** ins; stroke **2.8** ins. Fuel required: Regular. Standard axle ratio: **3.23:1.** Wheelbase **112** ins; length **188.2** ins; height **52.8** ins; width **71.6** ins; front tread **56** ins; rear tread **56** ins. Weight **2,695** lbs. Gas tank capacity **16** gals. Turning circle diameter **37** ft. Tire size **6.50 X 13.**
PRICE (without optionals): **$2,175**
PERFORMANCE: **0-30** mph, **4.3** secs; **0-50** mph, **9.4** secs; **0-60** mph, **13.5** secs; **40-60** mph, **7.2** secs. Top speed **96-99** mph. All times recorded on corrected speedometer.

As we've already pointed out, the first offerings from the Big Three camp have already started to grow, either in engine size or horsepower and torque. The 1961 batch of compacts (with the exception of the Valiant-copying Lancer) are all bigger than the '60s. In fact, they would be just about average-size cars, interiorwise, of seven or eight years ago, with about the same horsepower and performance.

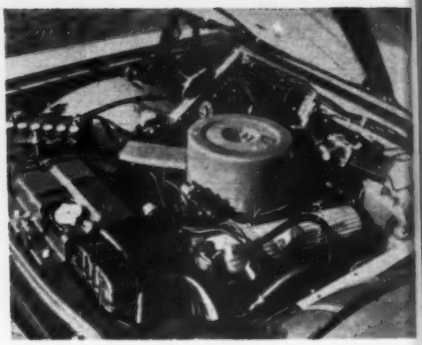
**A lot of you will** find this hard to believe but hundreds of thousands of dollars have been spent by the manufacturers in an effort to find out what the public really wants. Most manufacturers, admittedly, feel they don't know any more than they did before the sur-



**NEW emblem decorates area beneath flared tail. The car also comes in deluxe model.**

**COMPACT Olds has coil spring suspension. On winding, twisting roads tail is a little light but driver can compensate for this problem.**

**DASH is neat, easy to read but Uncle Tom thought the front seat was extremely low.**



**F-85 aluminum V8 mill displaces 215 cubic inches, boasts 155 hp, does 96 to 99 mph.**

veys were made.

**My theory** is the public hasn't a single clue as to what they really want. They're in the market to be sold, not queried. Thousands of buyers have the thought in the back of their minds that they'd like real gas economy attained on cheap fuel—and at the same time (if it doesn't hit the economy too hard) they'd like comfort and reasonable performance. Now all the manufacturers have to do is fill this bill with a package that'll bug their eyes like a kid getting his first bike, plus offering them a few added features such as styling suaveness, a little touch of exclusiveness and an attractive price. See, fellows? That's all you have to do.

The Olds F-85 fills a lot of bills and will be just what many people want, though naturally not all of them. Styled with a wheelbarrow-full of good taste on a 112-inch wheelbase, it hits close to a top compromise between the too-small car and the too-big car. Like Santa Claus, it has a little something for everyone. Its power plant is an aluminum V8 mill quite similar to Buick's Special engine and Pontiac's V8 Tempest model. Basically, all three engines are alike. The blocks are identical but they differ in several minor ways. For example, though the displacement on all three versions is 215 cubic inches, the valve springs on the Olds differ in shape and tension. The pistons are flat-bald versus the fractional-domed jobs on the Buick and Pontiac editions. The heads also differ, as do a few other parts.

None of these [*Continued on page* 158]

**DUAL headlights, wide grille mark F-85. It has styling characteristics of big brother.**

**TWO heads are better than one and they add up to fact that storage space is adequate.**

UMBRELLAS without lights are old-fashioned, according to L. Gordon, an inventive Englishman. Gordon, an electrical engineer, uses his umbrella for two purposes—as protection against rain and as a flashlight!

**This is what he did** to make his unusual umbrella which he calls the Lamp Gamp. He fitted a three-volt bulb in a socket in the end of the handle, hollowed out the lower part of the handle, inserted a three-volt battery and wired it to a switch. And *presto*—he had a light-umbrella!

**Gordon claims that** all umbrella manufacturers should consider his idea. He says: "It's invaluable on dark nights for glancing at your watch, looking at timetables and fitting keys into your front door and car." •

# HIDE-AWAY LIGHTS

SNEAKY PETE spells trouble for the unwary motorist. That's the name of this rotating red safety light which is designed for installation on unmarked police cars. The "ghost beacon" is hidden in the fender of the car and pops out when an officer wants to make an arrest or bring a speeder to a halt. Sneaky Pete extends or retracts at the touch of a hand lever on the dashboard of the car. Once the red light has been hoisted, it can be seen only too clearly by offending motorists.

**The inventor of this** hide-away blinker is Howard Walton of Clermont, Fla. He claims that his signal light is adaptable to all law enforcement vehicles and also for boats. He could be right. The next time you take to the road—beware of Sneaky Petes! •

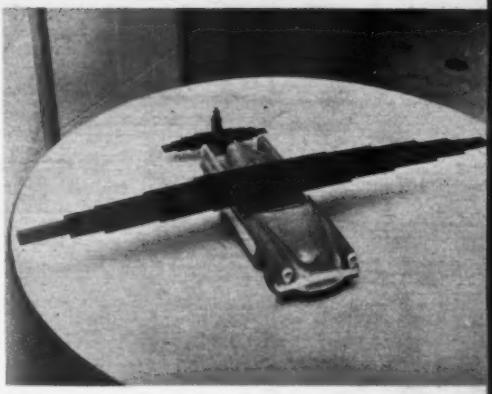
# GENIUS ON DISPLAY

INVENTIONS—over 200 of them—were on display.

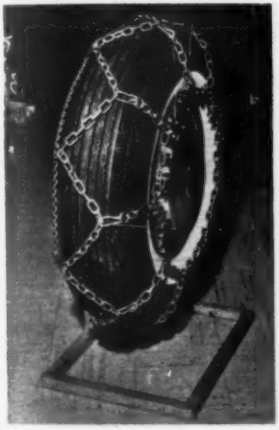
BABE ALARM dreamed up by inventor Dermont B. Crafts of Auburn, Me. features snap-type electrical connections at alarm and blanket. If restless youngster becomes uncovered, the alarm rings for mama.

MORE than 200 inventions which have never been manufactured or marketed were displayed at the National Invention's Exhibition and Creativity Conference sponsored by the Cleveland Engineering Society. The conference was designed to promote invention, research and business by bringing the principals together. Some of the genius displayed is shown here. •

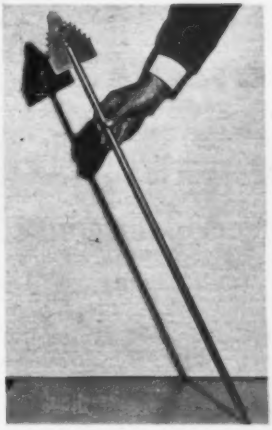
**DRAFTLESS** circulator provides fresh, clean air without disturbing people or objects.



**TELESCOPING** wind and tail section for flying car by Thomas F. Gibson of Cleveland.



**ANTI-SKID**, continuous traction tire chains invented by A. B. Clark, Amarillo, Texas.



**LONG DRILL** of John Stacheri, New Britain, Conn. bores fishing holes in ice.

**FILE** machine rotates to left or right via electric motor. Note the hand lever control.

**ILLUMINATED** carpenter's level, designed for clear reading of tubes. Forrest D. Coombs, Westwood, Mass.

**WHEEL** arrangement for hand-propelled carriages facilitates going up or coming down a curb or stairs.

**FINISHED ROOM has pine-paneled walls, tile floor, window seat, built-in TV and a furnace**

# GARAGE TO

*Here's the formula for raising property value (and teen-agers) in one fell swoop!*

**By Gordon P. Manning**

AS PARENTS of one or more teen-age children will agree, adding a rumpus room to the home will sooner or later become a positive necessity. For youngsters of this age need space—plenty of space—and away from the family if possible. And by providing them with a room where they can entertain their friends, you will not only don the halo of a loving papa, but will also free yourself from the need for tranquilizers or a sound-proofed den.

In our own case, some unused garage space—an area of about 15x20 feet—in the back section of the house proved perfect for the purpose we had in mind. After renovation this space accommodated a window seat with locker space, a built-in TV and a large game and utility closet. It also provided us with a 4x20-foot back hall that was badly needed. The only problem of any consequence we encountered was raising the floor three feet from ground level to make it even with the rest of the house. This entailed a little concrete block work to level off the new floor with the old.

**The entire conversion** job cost remarkably little. Expenditures from start to finish for both the room and the hall totaled only $1,250. And this covered not only the carpenter's labor, materials, insulation, floor tile and wiring, but the cost of a small gas floor furnace as well. If you have the time and talent you can do the carpentry work yourself and save about $400, thus cutting the cost of the job.

We paid $55 for the vinyl floor tile. The double-thick batt insulation for the walls cost us $57. I picked up three used

installed under the floor. Total cost of $1,250 included a hallway (not shown).

# RUMPUS ROOM

doors for $27.50 and a couple of big window frames for only $20. Used sash and doors are real money savers on alteration jobs and should be sought out whenever possible.

We used knotty pine on the walls, and this item amounted to $175. It gives a sturdy, marproof finish that is essential in a room of this type. Under the tile flooring we laid a ¾-inch-thick Plyscord floor at a cost of $83. The acoustical tile installed on the ceiling has proven a real sound-snuffer and was more than worth the $48 it cost us. The job was finished by a licensed electrician who wired the whole area for $47.

**Here, briefly, is how we did the job:**

Working from an accurate drawing of the entire conversion job, we began by setting up three concrete block piers for the floor girder. This girder, built up of two 2x8's, was run the full 16-foot-length of the room. On one side of the room we had to lay up a short wall of concrete blocks to close off the old garage door opening.

We then spiked 2x8's between facing

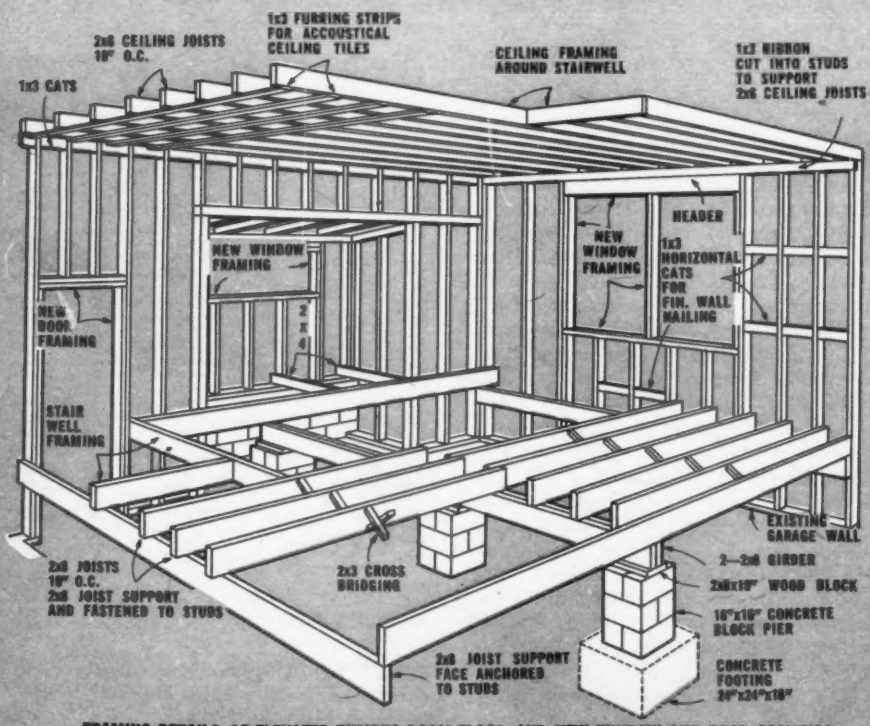
**SELECT WINDOWS** that help annex appear as a natural extension of the main house.

**GARAGE** attached to rear of house looked like this before converted to rumpus room.

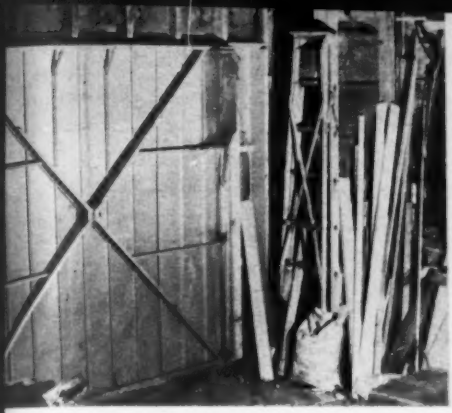
**WINDOWS** from an old schoolhouse were installed along the south wall of the room.

walls to provide nailing for the floor joists which were ten feet long and spaced 16 inches on centers. Their other ends rested on the girder in the center of the room.

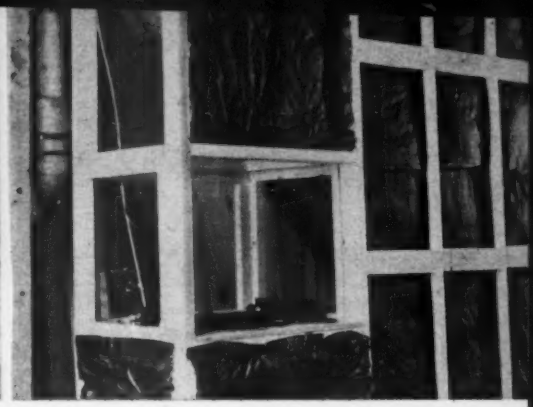
As soon as the joists were in place we bridged them, then cut the openings for the hall stairs and the floor furnace. Next, the ¾-inch Plyscord floor was laid. This went quickly because we had



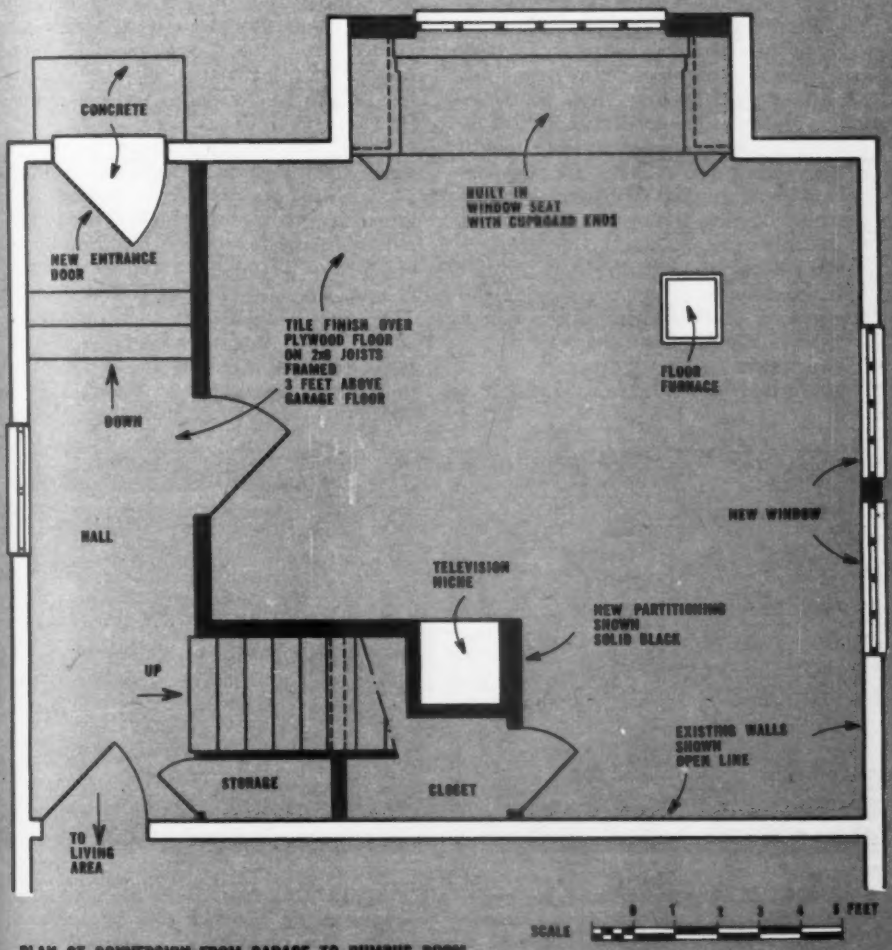

FRAMING DETAILS OF ELEVATED RUMPUS ROOM FLOOR AND NEW WINDOW AND DOOR OPENINGS



INSIDE, the unused garage had become a storehouse for junk of every description.



INSIDE WALLS were covered with double-thick batt insulation. Note open TV niche.




PLAN OF CONVERSION FROM GARAGE TO RUMPUS ROOM

**PLYSCORD FLOOR** was covered with felt over which vinyl asbestos tiles were laid.

**SMALL GAS FURNACE** was recessed in the floor and covered with a vented register.

previously calculated the spacing so that hardly any cutting was necessary.

Since two of the existing walls were badly out of plumb, we set up new studs on a level plate leaving ample space between them for the insulation. The new 2x6 ceiling beams were run the length of the room. As soon as the interior partitions were up, the 1x3 furring strips for the acoustical tile ceiling were nailed to the ceiling beams.

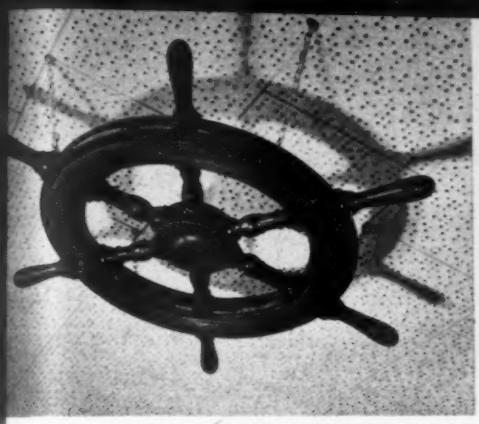
We next framed in the game closet and the television opening under the stairs and installed the double-thick batts of insulation in all the walls.

**The following day** we put the portable circular saw to work cutting the openings in the south wall for the two big windows. Frames and sash were installed and the area around them packed with insulation. The sash measured about 25x66 inches and was made up by a local mill for $11.

After the horizontal cats were in place, the knotty pine walls were nailed on. We used boards of eight-, nine- and ten-inch widths and achieved the informal effect we desired by installing them at random. With the walls up, the tile ceiling was quickly stapled in place. This was a cinch. The tiles measured 12x24 inches and fastened on easily. A two-inch cove molding finished off the joint between ceiling and walls.

**WINDOW SEAT** and lockers span the length of the room's sunny, wide-windowed alcove.

**TV NICHE** under the stairs has a duplex receptacle and lead-in for the TV antenna.

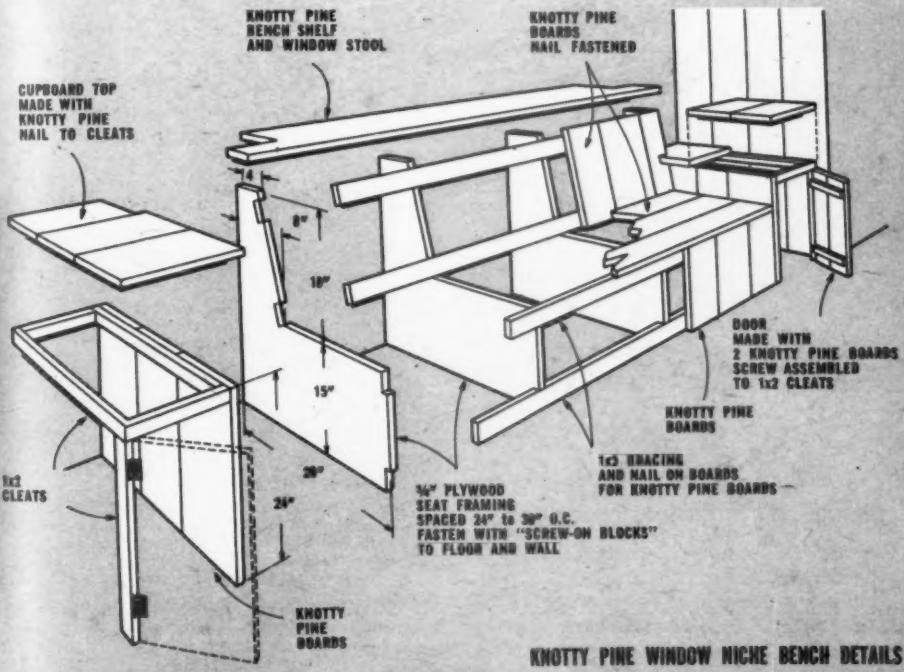


**OVERHEAD LIGHT** was fit into the ceiling fixture—a ship's wheel suspended by chains.

**BUILT-IN LOCKERS** at either end of the window seat offer plenty of storage space.

**The vinyl asbestos floor tile** was then laid over heavy felt. We estimated the quantity of tile by first making a scale drawing of the floor space to be covered. All that remained was to finish up the new back hall in the same manner using the same materials.

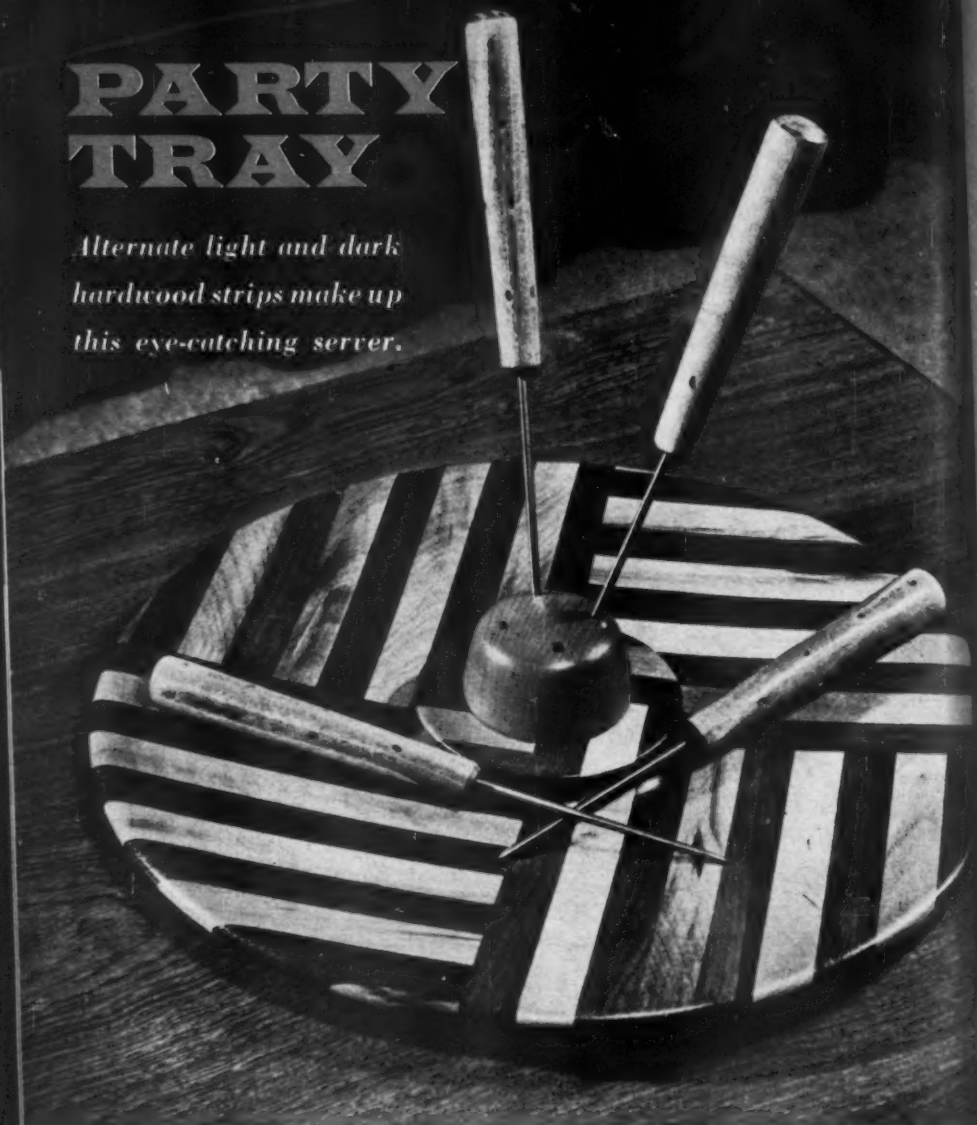
The time spent on this conversion job totaled less than 158 hours. Although we have been enjoying the room for only a few months, we feel it is one of the best investments we ever made. Try it yourself—we think you'll feel the same. •




**KNOTTY PINE WINDOW NICHE BENCH DETAILS**

# PARTY TRAY

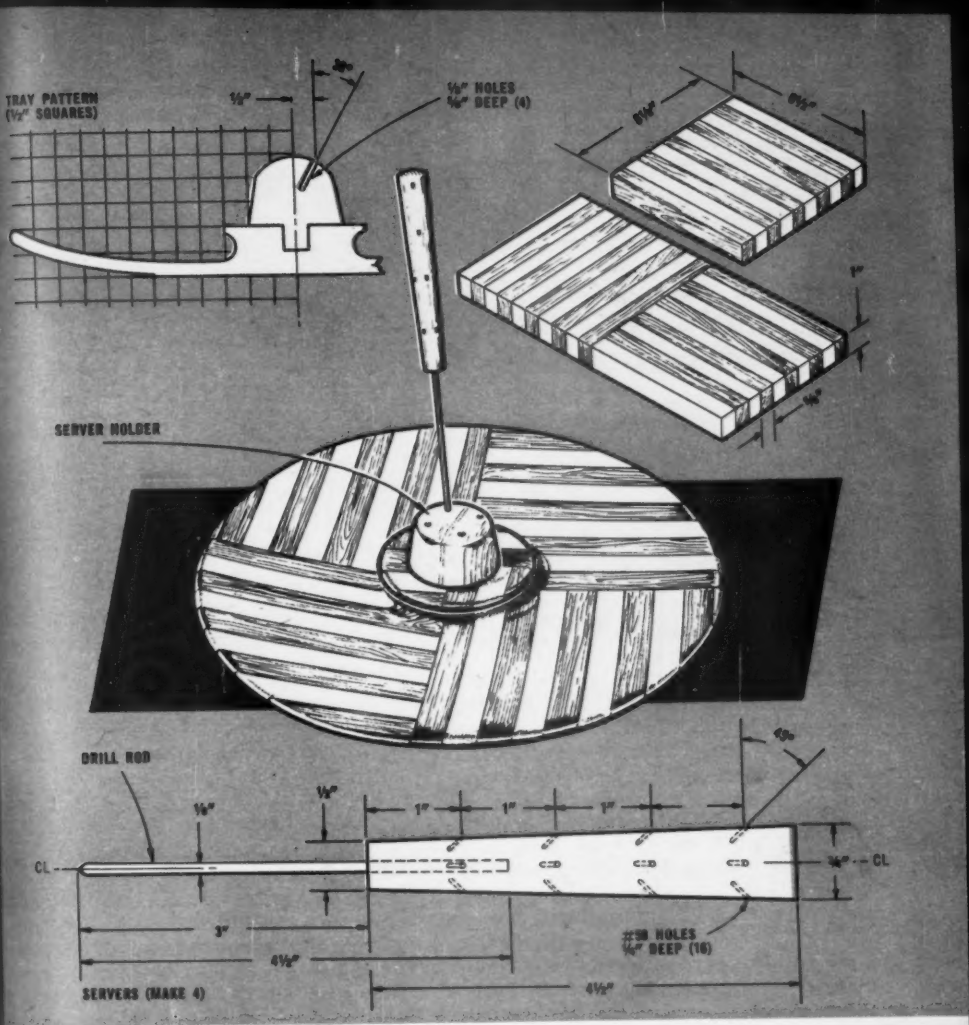
*Alternate light and dark hardwood strips make up this eye-catching server.*



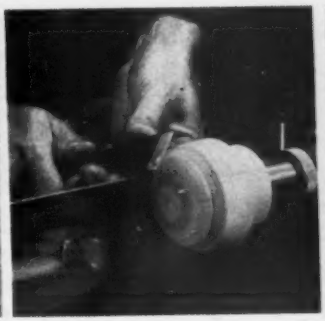
**By R. J. De Cristoforo**

ONLY painstaking inlay work rivals the beautiful effects obtained by turning glued-up blocks of contrasting woods. This tray is a good example of the artistry that can be achieved with the latter technique. Using maple or birch with walnut or mahogany, for example, will provide the pronounced color contrast best suited for this project.

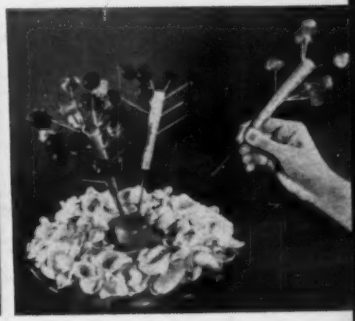
Start by cutting ten ⅝x1x24½-inch strips of wood—five light and five dark, then glue and clamp them together as shown in the drawing. Twenty-four hours later (when the glue has dried), cut this laminated board into four equal squares, then glue these together as indicated and [*Continued on page* 156]



BASIC assembly of hardwood strips is glued and clamped.



MAPLE server-holder knob is turned to shape on the lathe.



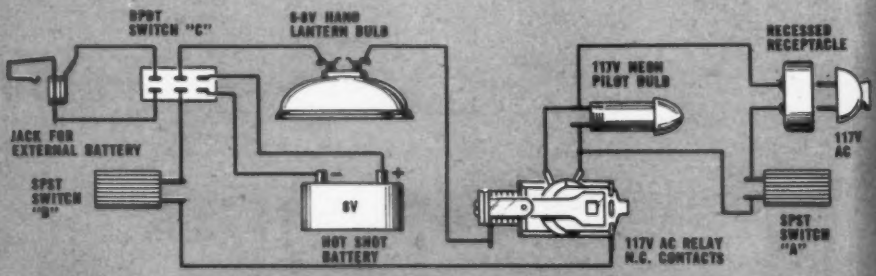
NOW olive "trees" sprout on an island of goodies.

# EMERGENCY LANTERN

***It lights automatically if there's a power failure at home and also operates off an external battery.***

THIS versatile lantern meets many needs around the home and on the road. Unlike most hand lanterns, it is never idle. Stored on a shelf with a 117-volt line cord plugged in, it immediately lights if there is a power failure. When the need occurs, the line cord is unplugged and the lantern is ready for portable use. It then operates off a self-contained, six-volt Hot Shot battery that will give many hours of useful life. If the lantern is to be used for long periods of time, you can throw a switch and connect it to the car battery or any six-volt battery.

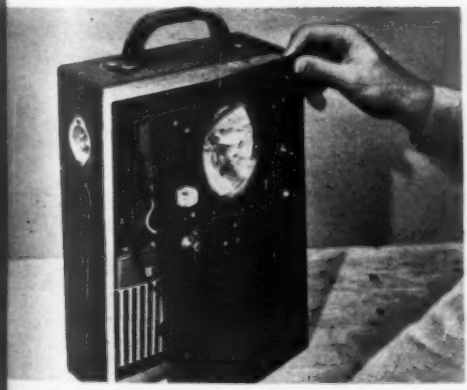
**The case** is easily built, starting with the sides, top and bottom. These pieces are half-inch white pine, butted and se-



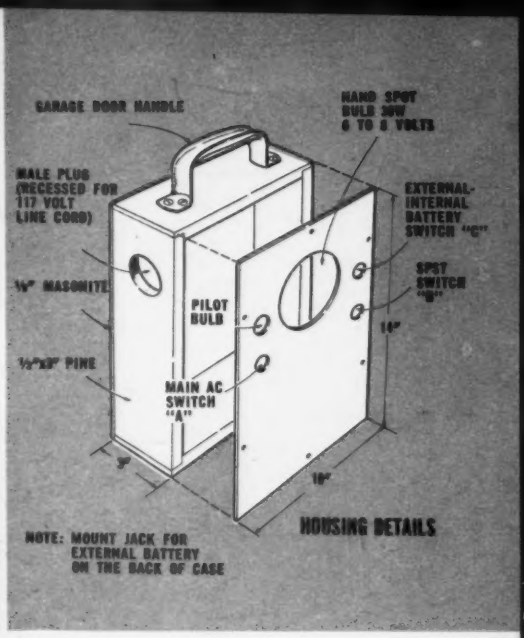

WIRING DIAGRAM

SOLDERING the leads to the relay. Note strips of strap iron holding lantern bulb.

RECESSED receptacle for 117-volt line cord is mounted on the side of the case.



COVER, with the bulbs and switches installed and wired, is screwed to the case.




cured with waterproof glue and wire brads. The front and back panels are eighth-inch tempered Masonite, secured at the rear with waterproof glue and wire brads and at the front with round-head wood screws. A large garage door handle attached to the top makes it easy to carry the lantern, even if you're wearing heavy gloves.

The 117-volt AC line is plugged into a recessed receptacle on the side of the case. When the main AC switch is thrown, the pilot light goes on and the relay coil is energized. This will prevent the lantern from being lighted. In the event of power failure, the relay is not energized and the lantern will turn itself on. Switch C permits the lantern to be used with an external battery.

—*Robert J. Mouser*

## BILL OF MATERIALS

| | | |
|---|---|---|
| 1 | Recessed receptacle | Amphenol #61M10 |
| 2 | Switches (SPST) | Cutler-Hammer #8280-K16 or similar |
| 1 | Switch (DPDT) | Cutler-Hammer #8363-K7 or similar |
| 1 | Pilot light (100-V) | Drake #105 |
| 1 | Relay (110-V, Normally closed) | Potter & Brumfield #MR11A |
| 1 | Jack | Phone type for external battery connection |
| 1 | Lantern lamp bulb (6- to 8-V) | Hand spot type, Westinghouse or similar |
| 1 | Battery | 6-V Hot Shot type |

In our December issue we described the construction of the two stereo speakers shown above. We continue with the construction of the two center cabinets for housing an AM-FM tuner, stereo amplifier, turntable and a television set.

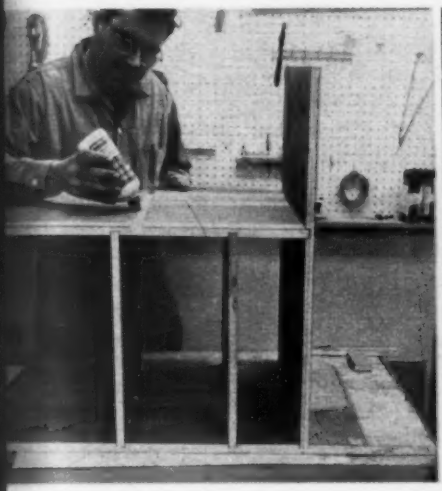
# CABINETS FOR STEREO COMPONENTS

THE two center cabinets shown in the photograph above are companions to the stereo speaker enclosures featured last month. Constructed of richly grained walnut, the right center cabinet houses the turntable, tuner, amplifier and

two record storage compartments. The other cabinet is built to take any standard TV table set.

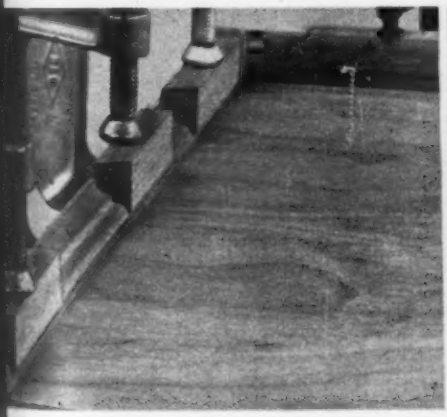
Basically, construction is similar to the two speaker enclosures described last month except that doors are included. Start by laying out the various sections on a panel of 4x8 ft. walnut plywood. Choose the better grain patterns for the doors. Try to match both sets of doors as closely as possible. Allow at least a half-inch extra in the layout for final cutting. If you use a saber saw for the rough cut, work from the back side of the board because the rougher side is toward the operator.

In some cases you may wind up with two non-parallel sides. If so, nail a 1x2-in. strip of wood along the fence side. Another use for the cleat is when you can't move the fence far enough away from the blade. In this case, nail the



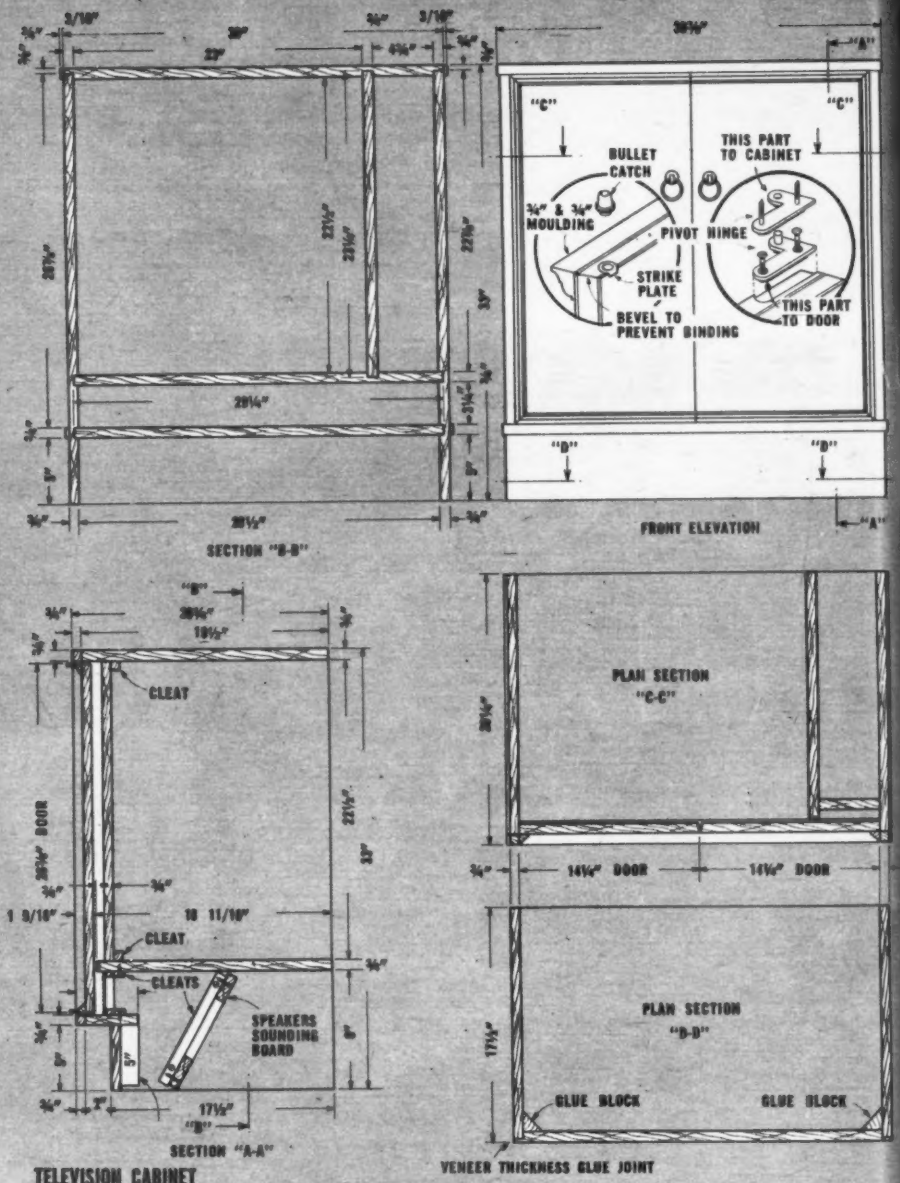
CHECK the fit of the shelves and the sides before applying glue to joints.

FITTING TOEBOARD. Note board is rabbeted up to veneer to eliminate raw edge.



HOW SCRAP pieces of molding are used to obtain a parallel clamping surface.

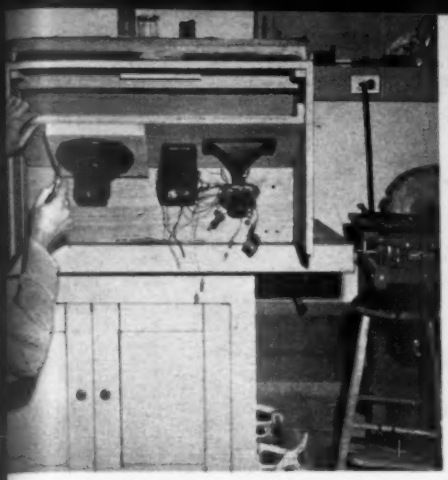
STRIPS of solid walnut are glued and clamped to the faces of each cabinet.




TELEVISION CABINET

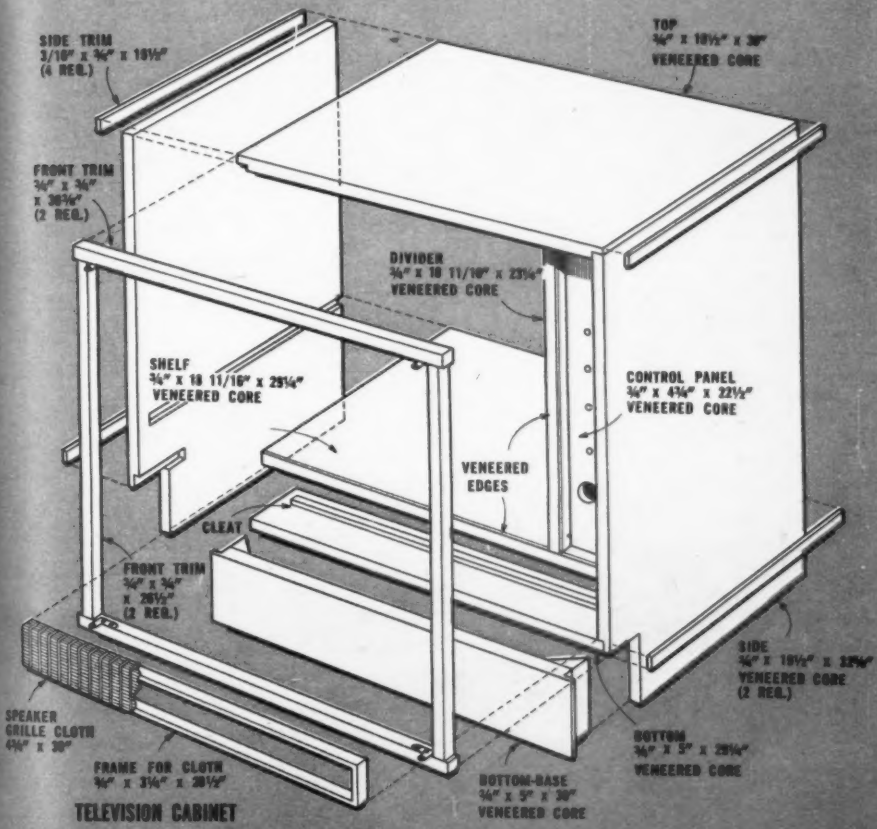
cleat on the underside of the board in the proper position and use this as a "fence" by riding it along the table edge.

**Cut all dadoes** and rabbets as shown and identify each part to avoid confusion when assembling. Before making the cuts in your panels it is advisable to make trial cuts in scrap pieces to insure a perfect fit of parts. When making dado cuts for the partitions and shelves, start



JENSEN high fidelity speaker and tweeter is mounted in the base of the TV cabinet.

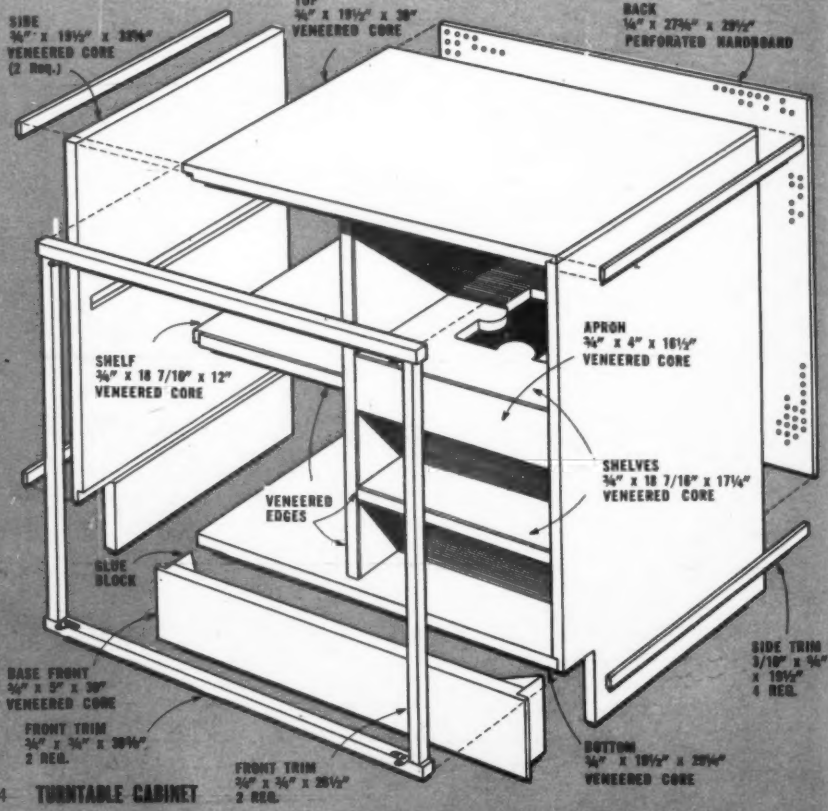
SPEAKER CLOTH is mounted on 1x1-in. framing, held in place with cleats at rear.

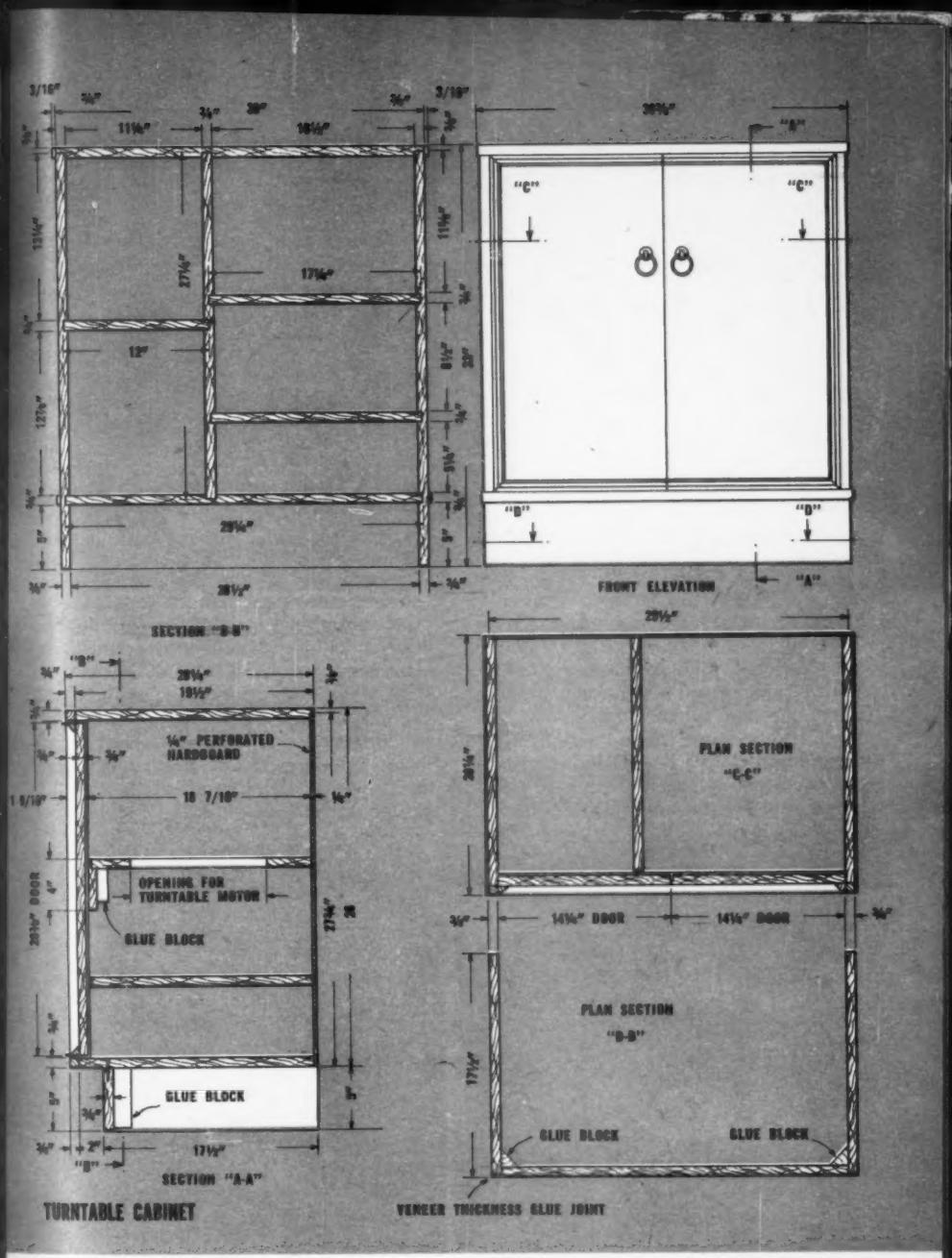



TELEVISION CABINET

**AFTER STAINING** and lacquering, the finish is given a good rub-down with paste wax.

**INSTALLING** the Knight AM-FM tuner. Stereo amplifier in center delivers 34 watts.






TURNTABLE CABINET

the cuts from the rear edge of the panel since a blind dado is made in most cases, stopping slightly short of the front edge. Shelves and partitions are notched as shown so that parts will mate. Remove all burrs with sandpaper and glue securely.

If you don't plan to use the Jensen speaker system illustrated for the TV set, you can utilize the available space

**REAR OF COMPONENTS cabinet is covered with Masonite. The cut-out is for ventilation.**

**SLIDING TV set into place. It is a 17-in. RCA table model. Cabinet back is open.**

for some other purpose such as additional record storage or, perhaps a secret hiding place for your "cough" medicine. In addition to the speakers, the cabinet features jacks and a volume control for earphones and a hearing aid.

The component cabinet was designed to accommodate a Rek-O-Kut turntable and arm as well as a Knight FM-AM tuner and stereo amplifier. The record shelves are open without separators as the cubby hole type of separator seems to be good only for collecting dust. Open shelves are easier to clean.

**A word of caution** when using glue—keep it off the "finish" surfaces because all glue stains. If you use the fast setting white glues wipe off excess with damp cloth. Note that the turntable board is glued with the [*Continued on page* 156]

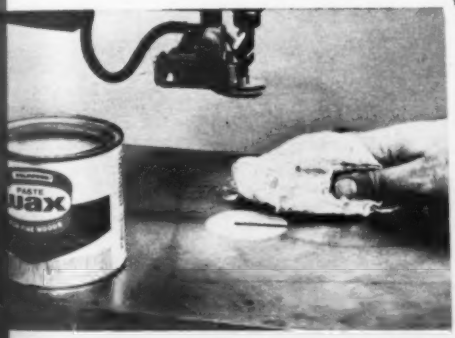
**COMPLETED components cabinet showing installation of Rek-O-Kut turntable and arm.**

**COMPLETED TV cabinet. Auxiliary switch at right kills sound. Note earphone jacks.**

# HOME HINTS

SMALL rug under furniture makes it easier to move on hard floor; protects floor too.

DOLLY for easy moving of large panels is made from a caster, a 2x4 and sheet steel.



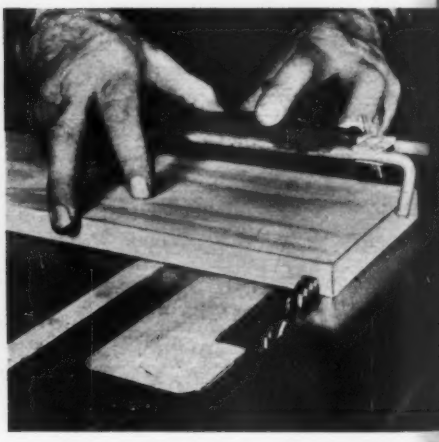

SAW TABLES remain smooth and rust-free if given an occasional coat of paste wax.

BAND-AID container hung on tool board is a good holder for pencils, rule, etc.

BURNING a match, safety or kitchen type, will mask undesirable odors in bathroom.

# HIDDEN VANITY

**TENONS** are cut by clamping sides to jig made by half-lapping two pieces of stock.

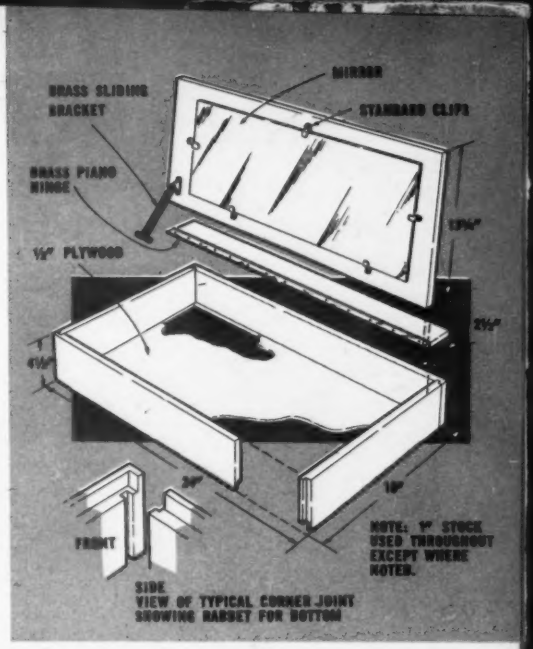


**MORTISES** are uniformly cut in front and back by using stop bar on crosscut gauge.

# BOX

***Beauty aids don't beautify a dressing table. Put them away in a neat vanity box.***

**By Ralph Bosun**

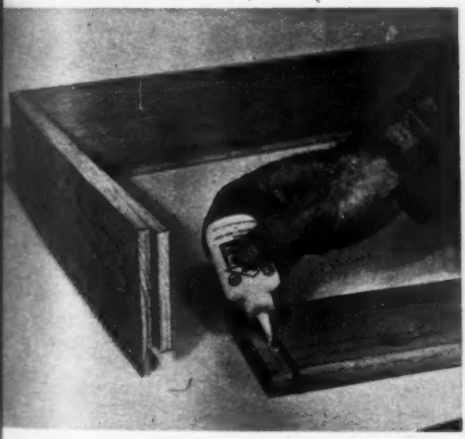



COSMETICS in jars, vials and all sorts of dispensers often accumulate on a dressing table to create an unsightly array. An excellent solution for this disorder is a built-in vanity box with a lid that doubles as a mirror support when it is raised to expose the beauty aids.

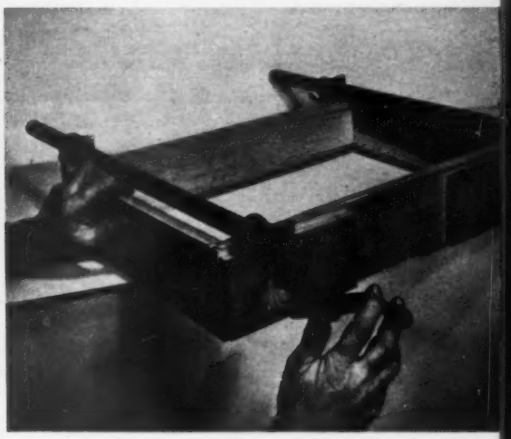
Designed to be attached directly to the wall or mounted between chests of drawers, this vanity box will hold all small items such as nail polish, rouge, lipsticks, perfumes and cream jars. Only tall bottles have to stay out because the depth must be limited to allow knee room below and keep the mirror at a practical height above.

**Easily constructed** as illustrated, the box can be finished to match the adjoining furniture or covered and lined with white sheet plastic. The plastic, bonded to the wood with Contact Cement, will prove attractive and practical.

For mounting between two chests, the simplest way is to remove the top drawers in the chests and drive screws through the sides and into the sides of the vanity box. Another way is to secure the vanity box to cleats attached to the sides of the chests. •



**GLUE goes in joints. Note ¾-inch rabbet along bottom edge for plywood panel.**



**PIPE CLAMP pressure is used until glue sets. Blocks under jaws protect surfaces.**

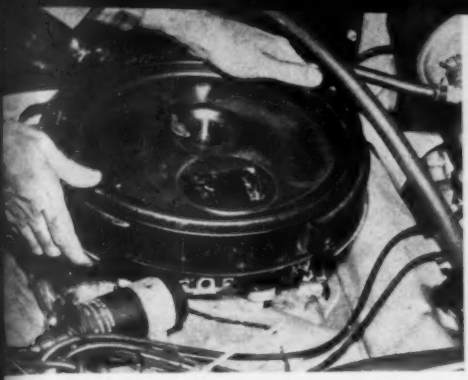
CAR CARE

# WINTER STARTING

**By Frederick C. Russell**
**Member, Society of Automotive Engineers**

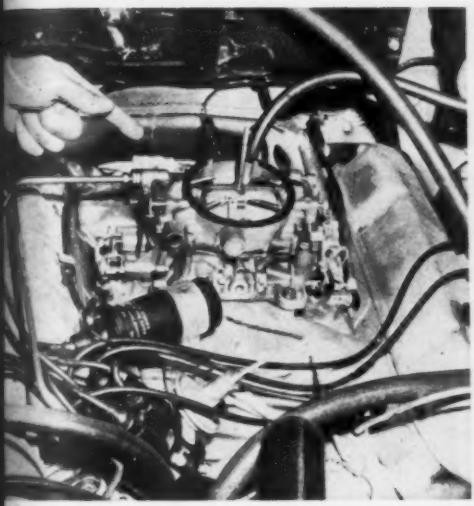
HOW to remain calm and collected when the engine balks on a cold winter morning is simple enough if a few tricks are known—and it's even better to take precautionary measures which make it less likely for the engine to put on a mule act. Human nature and automobiles being what they are, however, the problem usually resolves itself into getting caught and then trying to fight through to a start.

Sometimes getting started is nothing more complicated than going back into the house for another cup of coffee while the battery recovers enough to crank faster. Or it may mean removing three of

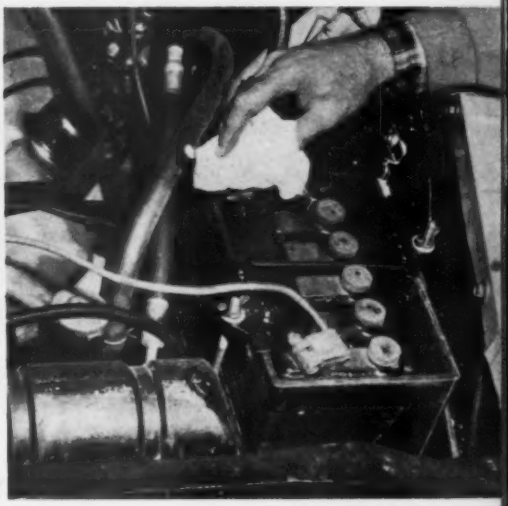


**BE SURE** air cleaner isn't cramping the automatic choke control; if so, adjust it.

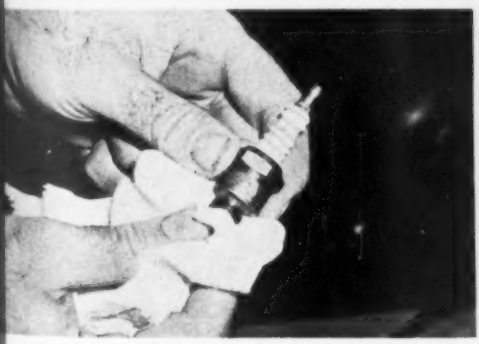
**AFTER FLOODING,** wait; then crank with accelerator fully depressed to open choke.



**ENRICHING** choke coil adjustment one degree may help when cold start has failed.

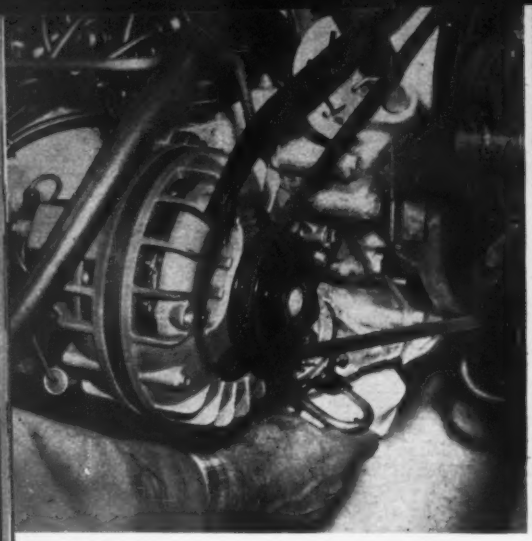


**CORROSION** cuts down battery efficiency, so be sure that terminals are kept clean.

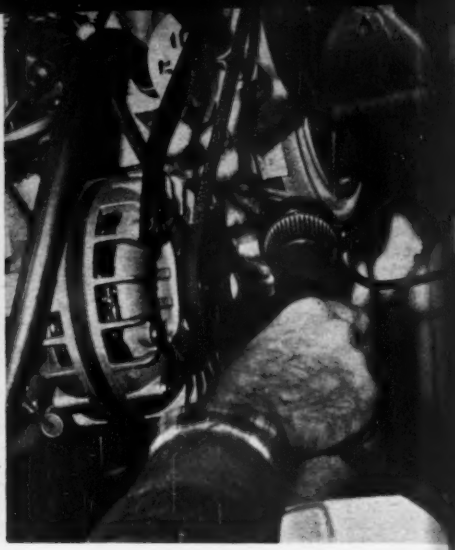


**PLUGS** may need cleaning since more oil is sucked past worn rings in the winter.

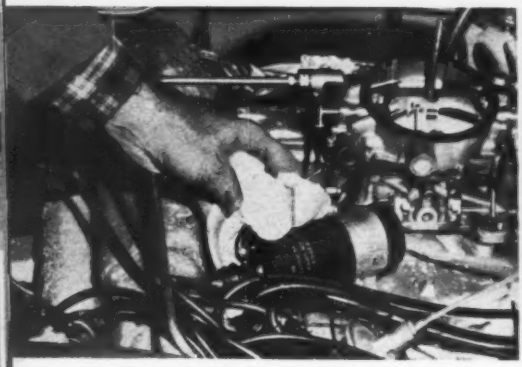
**ADDITIVE** increases cranking speed if a light or multi-viscosity oil is not used.



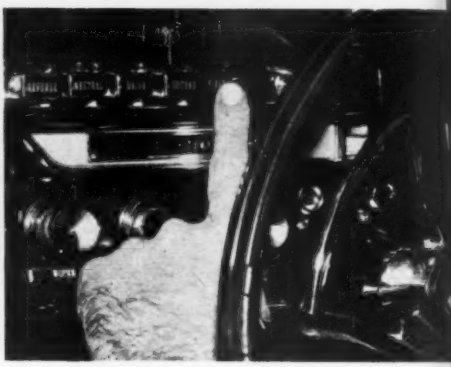
**WIPING fuel filter bowl. Low fuel supply allows condensation and ice to form.**



**CHECKING the timing. Also keeps points, plugs and fuel-air mixture on the button.**



**PREVENT high tension current flashover by keeping ignition parts clean and dry.**



**TO PUSH-START automatic, turn ignition on, press Low button and step on the gas.**

eight spark plugs to reduce cranking resistance enough for a weak battery to spin the engine to a start. After running the engine for a minute or two, the three plugs can be replaced and another start will be successful. For motorists with two cars, there's always the convenience of hooking up two batteries in parallel to increase the amperage rather than the voltage. Even a 6- and a 12-volt battery can be hooked in parallel if you're careful to have all lights and accessories off during the cranking boost.

One thing to remember about batteries is that a 12-volt job can discharge itself easier than the 6-volt variety if the top is wet or even damp. The higher voltage increases electrical pressure between the battery posts and that means more inclination to discharge. For any battery, more cranking stamina is assured if the cell solution level is kept lower during cold weather. Never add water to the cells before garaging the car. Do the job after the engine has been running and just before you plan to add a reasonable amount of mileage.

To help a weak battery, cranking speed can be increased by pouring a can of oil additive into the engine. Cranking

**EXTENSION LIGHT left on all night under hood will help to keep things warmer.**

speed is stressed because it has been proved that an engine will start at way below zero if its crankshaft can be spun fast enough to build up compression. The trouble is that too often the battery is sapped of its energy cranking the engine and hasn't enough left over for hot ignition. It takes three ingredients for a start: a rich mixture, good compression and a hot spark. You can't have the right mixture unless the choke is working properly so let's keep in mind that this unit usually fails because of a leaky heat tube. Cold air getting into the tube causes condensation and the moisture corrodes the thermostatic coil which controls the choke valve, thus preventing the valve from closing. These tubes are easily replaced and you can buy improved ones which resist leakage. If the choke is suspected of failure, you can take off the air cleaner and close the choke manually.

Where cars are kept outdoors or in a damp garage, a normal start often can be had by wiping condensation from the coil, the distributor cap and the tops of the spark plugs. Moisture on exposed ignition parts causes flashover of high tension current. There are spray coatings to help protect these parts but if they have become wet from heavy rain or drifting snow, drying can be speeded by spraying [*Continued on page* 154]

# SERVICE TIPS

## *from Detroit*

Oil level recommendations for 1960 Plymouth and Valiant TorqueFlite "6" transmissions are changed as follows: The level should be at the Full mark when cold and between the Full mark and ⅝-in. above it at normal operating temperatures.

* * *

The 1961 Buick Special, which has the new automatic transmission, can't be started by pushing. If the battery won't start it, install a fully charged battery or use a jumper circuit from another charged battery. Models equipped with Synchromesh transmission may be started by pushing.

* * *

Fuel starvation in 1960 Thunderbirds and Falcons may be caused by swelling of the flexible fuel line at the fuel pump. If so, the flexible fuel line should be replaced.

* * *

Use caution when raising a 1960 Plymouth with a floor jack. Locate the jack only under the rear axle housing or under the front suspension lower control arms. Never use the jack on any part of the underbody.

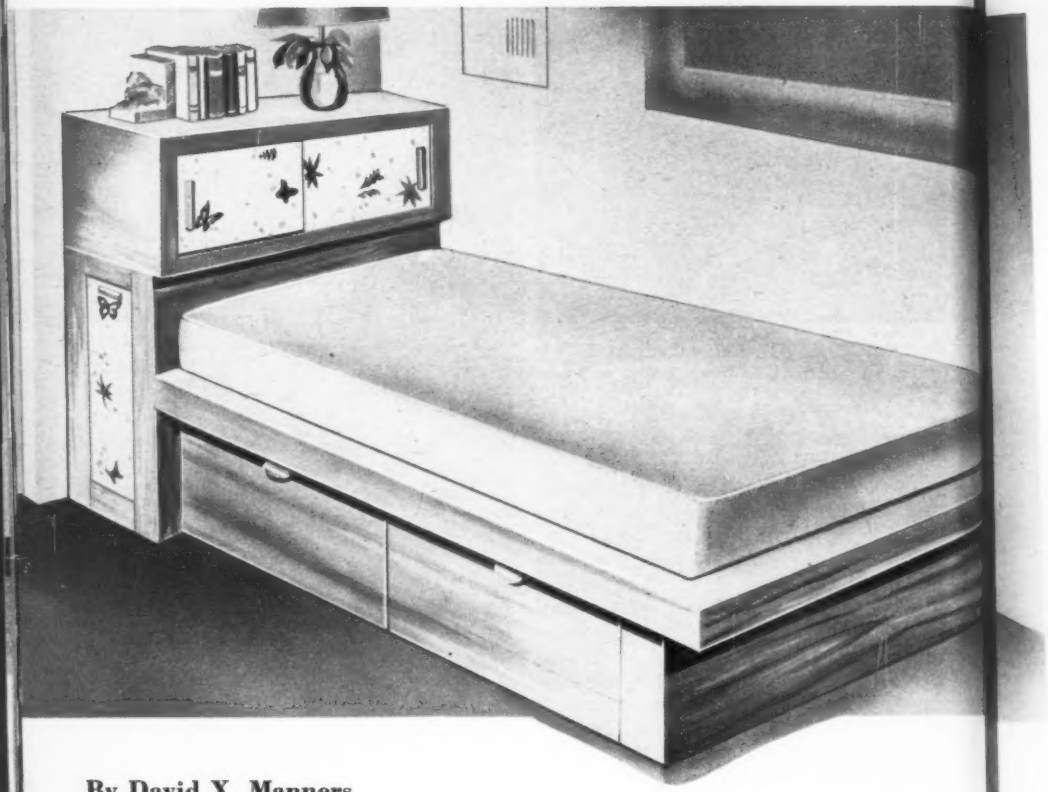
* * *

A change in the distributor oiler used on 1960 Buicks could cause proper servicing to be overlooked. Early distributors had an obvious oiler standpipe; later models have a not-so-obvious oiler located below the base of the distributor cap. Add SAE 10W oil sparingly every 1,000 miles.

* * *

In 1960 Chrysler and Imperial cars equipped with an alternator, excessive ammeter pointer flutter accompanied by flickering headlights or interior lights may be caused by high resistance (corrosion) in the field circuit to the alternator or by an improperly set voltage regulator. Check both.

# BUNK BED.....



By David X. Manners

***You can build a better bunk than you can buy. Here's one that has roll-out drawers and a clothes hamper.***

WHERE INDEED could you buy a bunk bed that has all four of the following advantages?

(1) A four-inch foam-rubber mattress on a base that offers superior support for healthful sleeping.

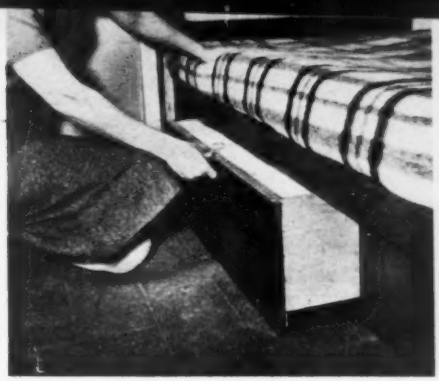
(2) Plenty of storage space including two big roll-out drawers, an enclosed headboard compartment and a built-in roll-away clothes hamper.

(3) No dust-collecting under-the-bed area to be cleaned.

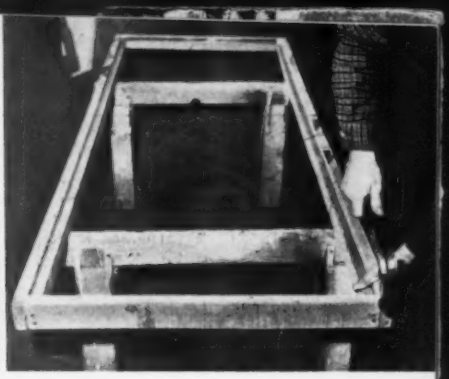
(4) An attractive design that makes this piece of furniture a decorative asset in any bedroom or playroom.

**The bunk is designed** to take a standard 30x75-inch mattress, although it can also be built to accommodate a 39x75-inch mattress. Both are stock sizes.

The bunk frame is made of 2x3-inch hardwood and is 77 inches long. Cut a ¾x¾-inch strip from one side of this stock and, after the frame is assembled,



ROOMY bunk drawers hold linens and clothing, roll easily on ball-bearing casters.



BUNK FRAME is carefully assembled to support pegboard mattress base.

CHECK equal length of frame by sliding a plank from side to side between the ends.

FASTEN FRAME to wall by nailing into studs, then start work on headboard.

CONSTRUCT two identical roll-out drawers having front panels that conceal casters.

MATTRESS BASE is a panel of ¼-inch pegboard which supports the mattress.

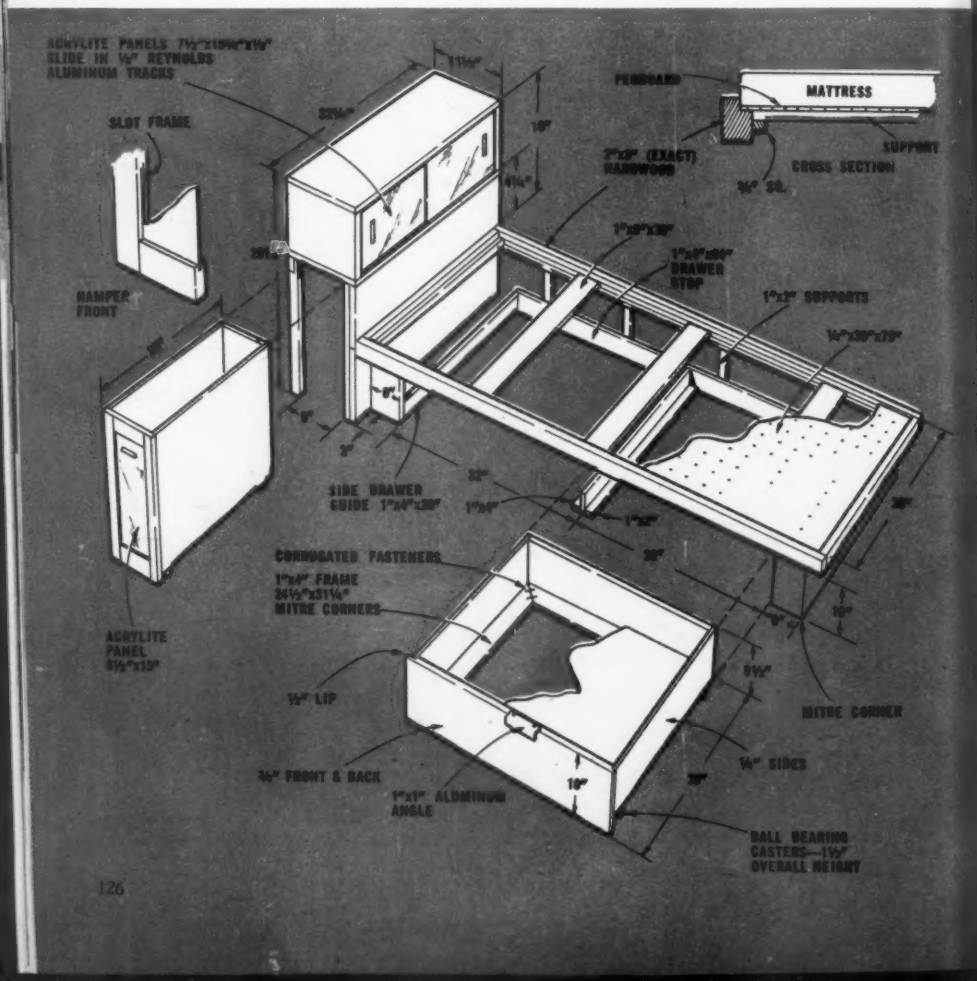
nail this strip ¾ inch below the edge from which it was cut. It serves as a ledge for the ¾-inch transverse boards on which the pegboard mattress base rests. Nail the frame to the wall so its upper edge is 13½ inches from the floor. Then, at 16-inch intervals nail the 1x2-inch supporting verticals in place.

There is a 4½-inch filler board on each side of the under-the-bunk drawers. At the bunk's head two shelving boards are joined at the frame and help support the headboard unit. Butted joints can be used if this unit is to be overlaid with plywood or Formica; otherwise use mitered joints. The headboard's Acrylite plastic panels slide along a ⅛-inch aluminum track.

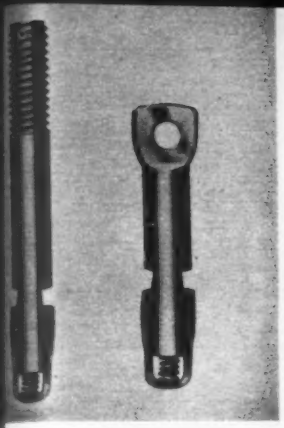
**Construct** the under-the-bunk drawers next. Miter the corners and join them with corrugated fasteners. Ball-bearing casters, attached to each of the four corners, are concealed by the front drawer panels. The Masonite drawer bottoms are simply dropped into place. Drawer pulls are 1x1-inch aluminum angle screwed to the drawer tops.

Construction of the hamper is the same as that of the drawers except that its front is a panel of Acrylite recessed in a rabbet cut around the front frame. Pulls on the hamper are cut from half-inch stock.

If an attractively grained wood was used for this project, enhance it with a finish of wax or varnish. Otherwise paint it to blend in with the room where the bunk is installed. •

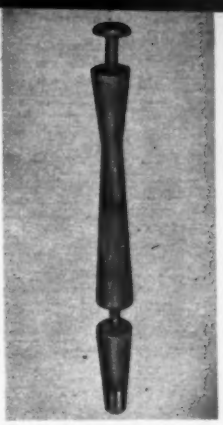


# MI's HARDWARE STORE



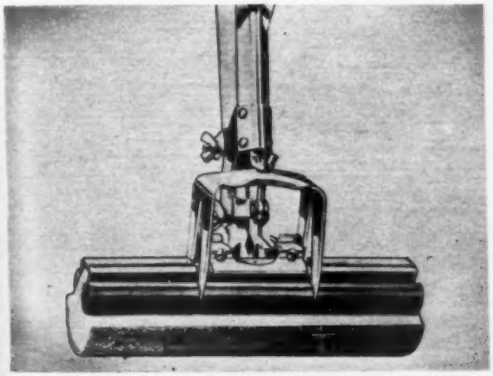
**WEJ-IT expansion bolts slip into holes, expand when they're tightened.**

Kirel, Inc., Kingston, N. Y.



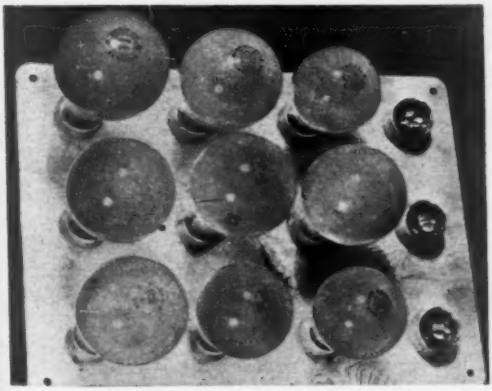
**SHELF-MASTER KIT has legs and spacers for tiered furniture.**

Stanley, Wallingford, Conn.



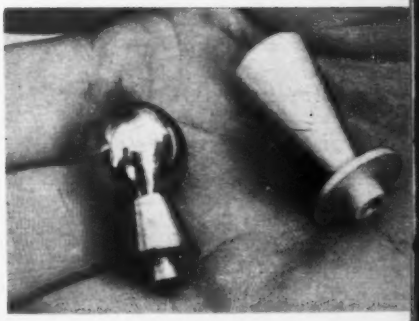
**SPONGE MOP scrubs, waxes or dusts and can be squeezed by lever-actuated rollers; costs $5.95.**

R. H. Fisher & Co., 112 Atlantic Ave. W., Virginia Beach, Va.



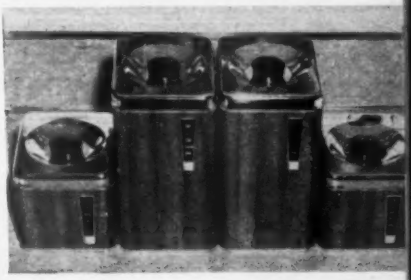
**STOR-A-BULB RACK holds spare light bulbs and fuses, comes in red, yellow or gray; $1.00, ppd.**

Ridgewood Sales, 64-16 Palmetto St., Ridgewood 27, N. Y.



**DRAWER PULLS come in lacquered solid brass or anodized aluminum.**

Engineered Prod. Co., Box 118, Flint, Mich.



**CANISTER SET of wood-grain vinyl permanently bonded to steel; $9.98.**

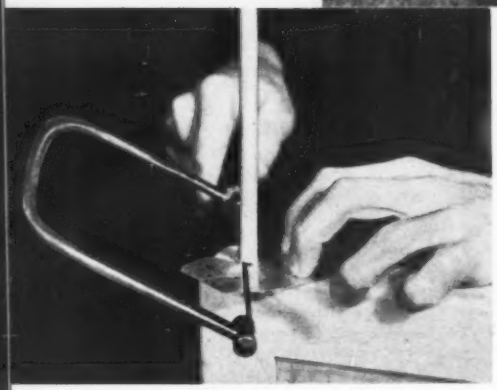
Lincoln Metal Products Corporation, 225 42 St., Brooklyn 32, N. Y.

**On request, Douglas Fir Plywood Association, Tacoma 2, Wash., sends a how-to folder covering 12 new fence designs. . . . Aluminum uses are covered in How To Make Your House A Carefree Home, a 32-pager sent free by Aluminum Co. of America, 752 Alcoa Bldg., Pittsburgh 19, Pa. . . . Ten cents brings How To Get More Out Of Life With Light, a booklet on uses of lamp fixtures by Lightolier, Inc., Jersey City 5, N. J. . . . Write Cadillac Plastic & Chemical Co., 15111 2nd Ave., Detroit 3, Mich., for a folder on outstanding properties and applications of 13 major plastics.**

# TILE-TOPPED LAMP TABLE

***Early American design is combined with modern tile for a pleasing and practical piece of furniture.***

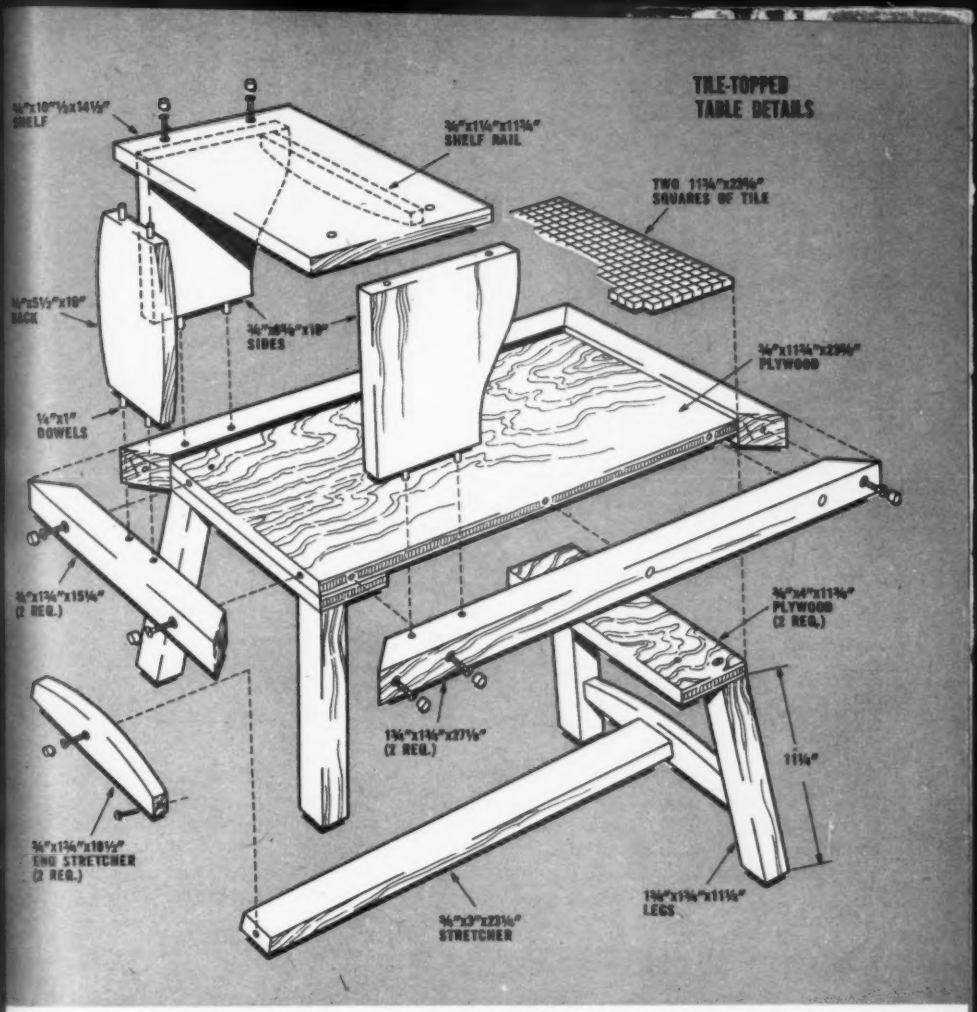
**By**
**Robert Hoppough**

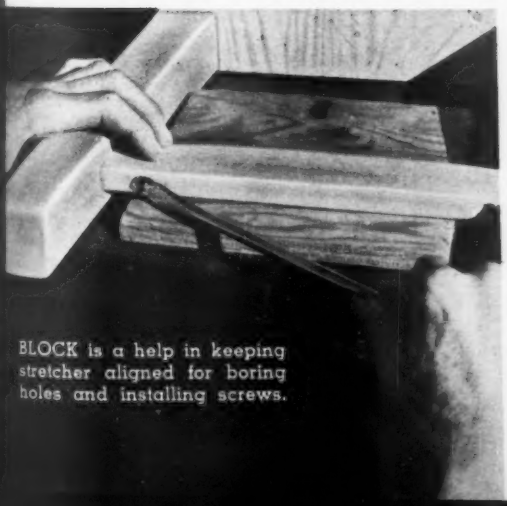


**DOWEL PLUGS are cut off close without marring surface by using thin metal mask.**

MOTTLED brown tiles blend nicely with the cherry-finished wood in this table, enhancing the appearance and also increasing the practicality of the piece. Construction is simple and the tiles are no problem because they come ready-mounted on a cloth or paper backing which you can glue down in sheets.

Dimensions of the plywood top can vary slightly, depending upon the size of the tiles used. In any case, start with the top and attach the frame with glue and screws. A good tip is to finish-sand all pieces before assembly to eliminate the difficulty of trying to sand into cor-

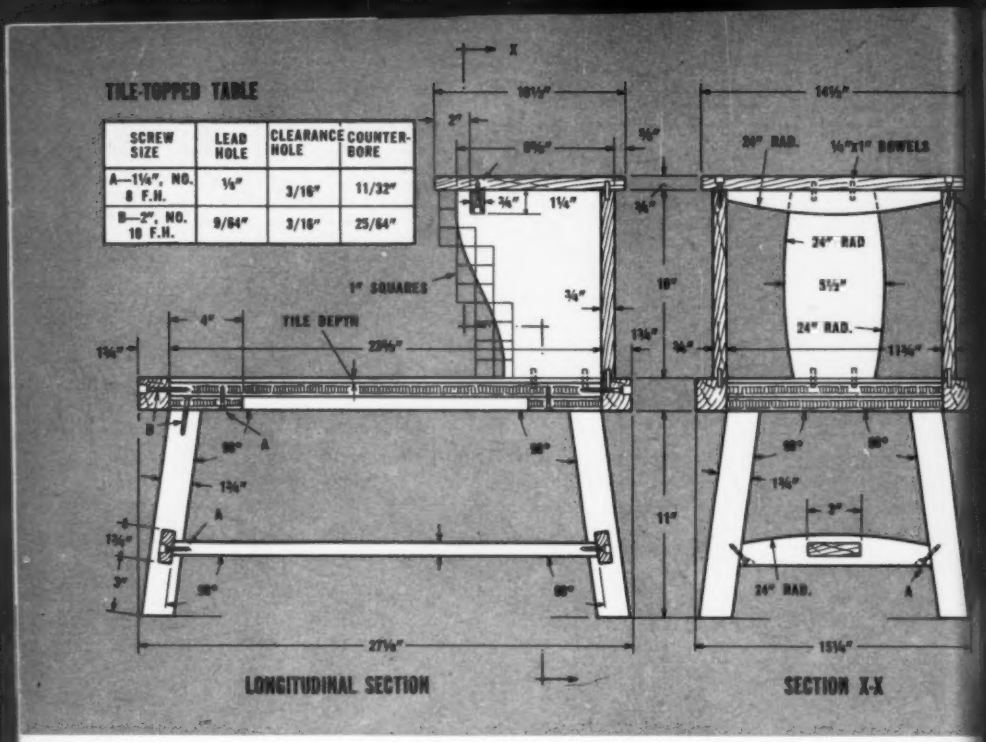


BLOCK is a help in keeping stretcher aligned for boring holes and installing screws.

ners. Use long clamps to hold the pieces until the glue sets and then bore the pilot holes for the screws. The job is speeded up considerably if a combination drill, countersink and counterbore is used. A standard dowel is cut up to plug the screw holes. The contrast in grain between it and the hardwood in the table adds to the decorative quality of the finished piece.

**The angle cuts** of the legs are easy with a circular saw. Just tilt the blade 8° and adjust the




miter gauge 8° left or right of the 90° mark as required. After rounding the corners of each leg and sanding it smooth, it is attached to the crosspiece with glue and one 2-inch, No. 10 screw. Each pair of legs is then installed as a unit and the stretchers go in as illustrated.

At this point it is wise to completely finish the wood because the joints between the tiles must be filled with a grout which could get into [*Continued on page* 156]

**USING** ¾-in. plywood crosspieces permits each pair of legs to be installed as a unit.

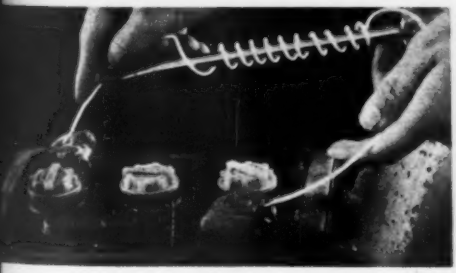
**BELT SANDER** cuts in a straight line with wood grain, takes plugs down flush.

# Shop Shorts

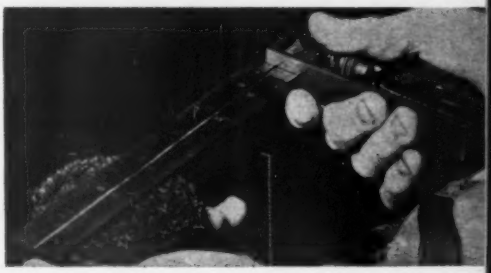
TWO saber saw blades soldered together make a good tool for squaring round holes.

NAIL with head cut off can be used as a drill bit for a small or odd-sized hole.

HEAVY WELDER is easily moved on dolly made of plywood and 2-in. plate casters.

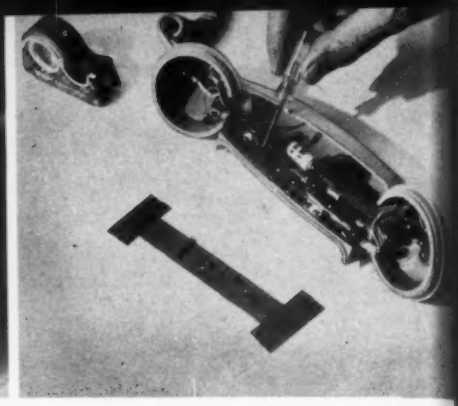


MAGNETIZE a tool as shown: just touch ends of insulated wire to battery posts.



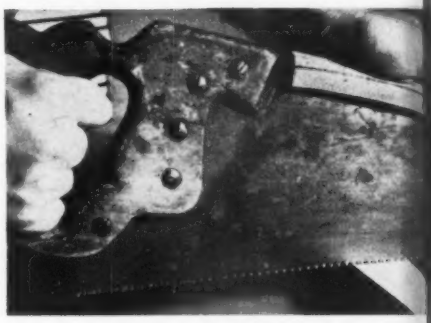
TOOL OILER is tight roll of oil-soaked felt weather stripping in shoe polish can.

**COIL SPRING** connected to hinge-mounted motor and machinery frame will help to relieve excess tension on the motor's V-belt.



**WHEN DOING** an assembly job, prevent the loss of tiny parts by laying them out on the sticky surface of tape as shown above.

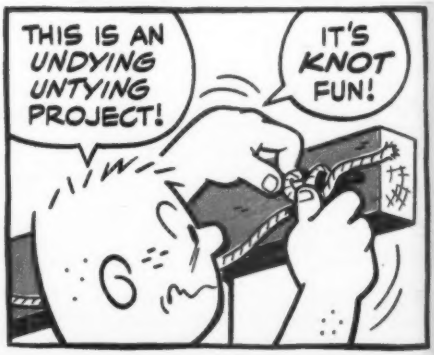
# HOME AND SHOP SHORTS

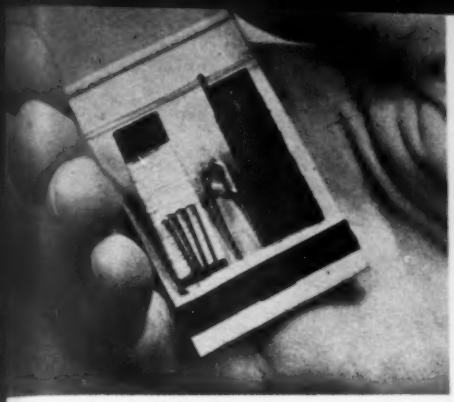


**SHORT LENGTH** of slit garden hose fitted over back of a handsaw blade permits you to bear down on blade when making a cut.

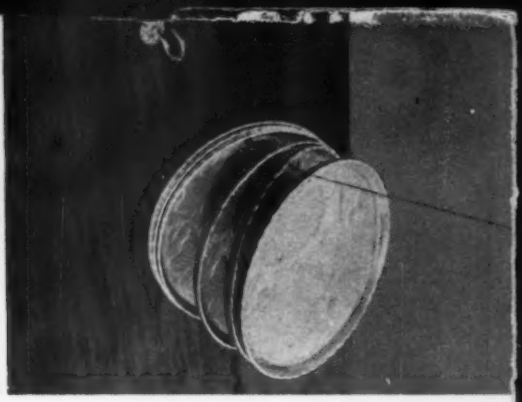
Send Freddie Fumbles your idea of a good short-cut, time-saver or safety device in your work, whether it be in the home, shop, office or farm. Each tip accepted will be paid for at the rate of $10. Naturally we cannot acknowledge or return the ones we cannot use. However all will be carefully read and evaluated. (Those which we can use in other departments of MI will be paid for at our regular rates.) Please send in your ideas on a postcard only. Address to Freddie Fumbles, *Mechanix Illustrated*, 67 W. 44th St., New York 36, N. Y.

## FREDDIE FUMBLES





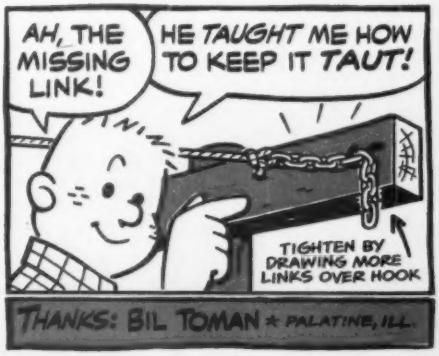
USED MATCH BOOK can hold a handy emergency sewing kit that includes some pins, black and white thread and needles.

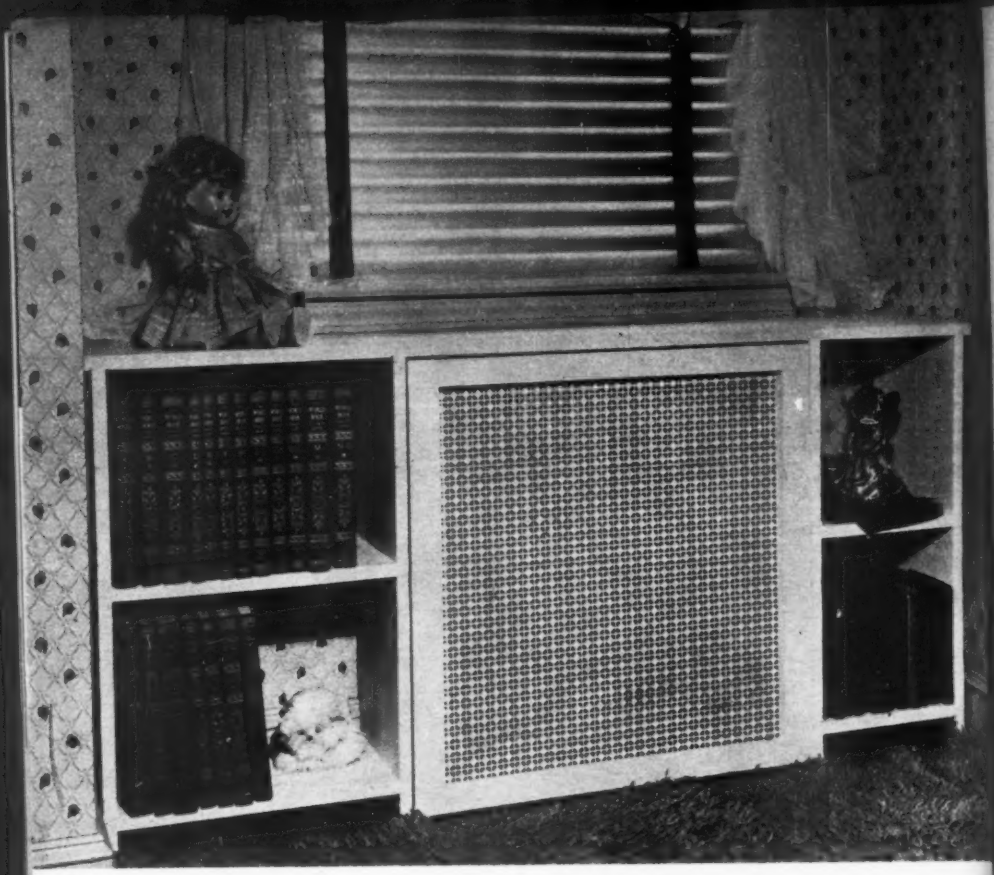


BURGLAR ALARM consists of metal coasters strung on a black thread spanning doorway. Intruder breaks thread—and crash!

TICKING ALARM CLOCK keeping you awake? Both the ticking and the alarm bell will be muffled if the clock is set on a towel.

CLOTHESPIN CONTAINER is made from a tin can and a pair of wire hangers. Cover it with a plastic bowl cover when not in use.





# Bookcase Radiator Enclosure

***Try this vanishing act on your radiators and see how it enhances the beauty of your rooms.***

**By Ralph Severt**

HERE'S a simple and practical wood project that marries a handsome radiator enclosure to a pair of attractive bookcases. In all fairness it should be pointed out that this bit of bigamy was somewhat atoned for when it was proved that the enclosure could and did support both bookcases in fine style from the moment the union was made.

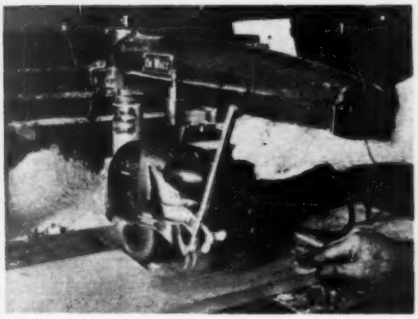
The entire unit—except for the 1x2-inch stock comprising the grille frame—is made of 1x10-inch boards. The perforated metal grille material is available in a variety of designs at all hardware stores. The side sections are planned for two shelves which have a larger-than-usual space between them for a set of encyclopedia and other extra-tall books.

**Start by sawing** the top board and

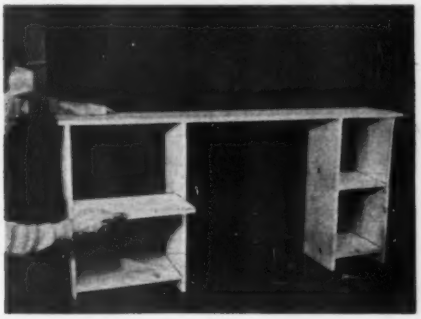
the four uprights to size. Keep in mind that the uprights will fit into quarter-inch-deep rabbets, so allow for that in their length.

Having provided clearance for the radiator valve, locate the inside positions for the two uprights at each side of the radiator, as well as for the two that fit one inch in from each end, then mark the top board for rabbeting. Now put a dado head on your power saw and cut

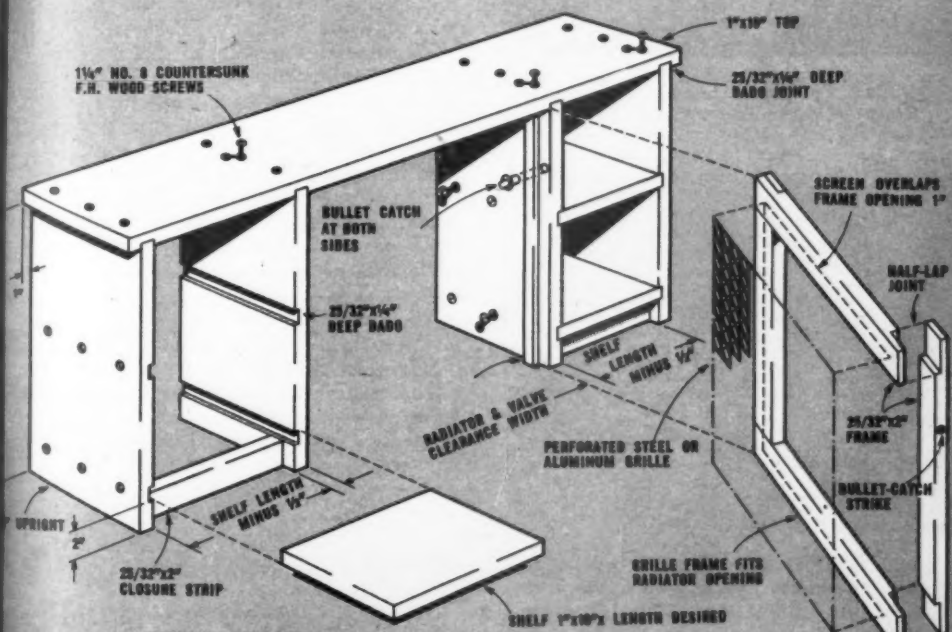
**APPLY GLUE** along top-board grooves before securing uprights in place with screws.



**FOUR RABBETS** ¼-inch deep are cut across underside of top board using a dado head.

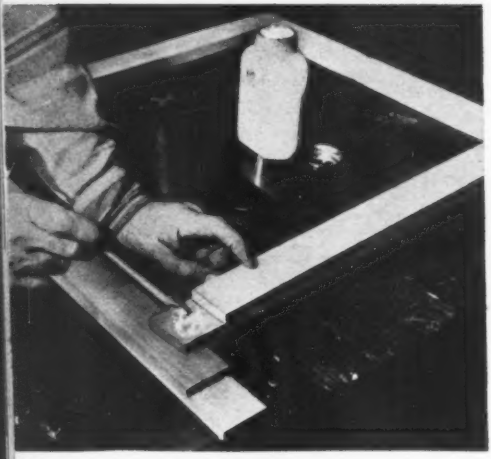


**RABBETED UPRIGHTS** support the shelves. Now make the frame for the metal grille.

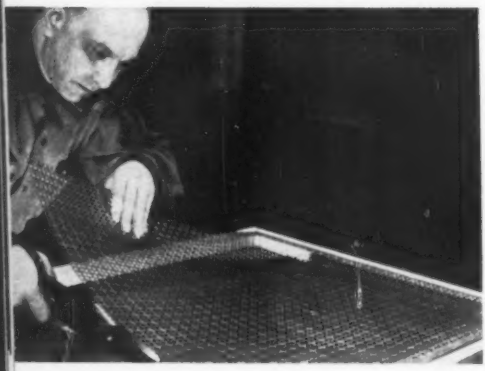



**RADIATOR ENCLOSURE**

**UPRIGHTS** of unit are secured with glue and screws in rabbets cut into top board.



**GRILLE FRAME** is half-lapped at corner joints and assembled with glue and screws.



**DECORATIVE** metal grille is cut to size with tin shears, then stapled to the frame.

out these four ¼-inch-deep rabbets.

The uprights must also be grooved to receive the shelves. Mark off two inches from the bottom of each, divide the remaining space evenly, then rabbet each according to the diagram.

These pieces are now temporarily assembled and squared so that the shelf positions can be marked and the shelves then sawed to fit.

**Before proceeding,** check the area where the unit will be installed to see if any interference—such as a baseboard or other projection—will prevent it from standing flush against the wall; if so, trim the back of the shelves or uprights as required. Now permanently assemble the unit with glue and flathead wood screws.

The frame for the radiator grille is made of 1x2-inch stock joined at the corners with half-lap joints. Set the dado head to cut through half the thickness of the corners of this stock. First test the cut on two scrap pieces, raising the blade in gradual steps after each pass until the depth is correct and both pieces fit flush together. When the width of the cut makes a complete half-lap joint, clamp a stop block on the miter gage. All four frame members can now be uniformly notched on each end to form the required joints. Assemble the frame with glue and nails at the corners.

Measure the perforated metal grille material so that it will overlap the frame one inch all around, then cut it to size with tin shears and staple it to the interior surface of the frame. The frame is held in place by two bullet catches installed as indicated in the diagram. This permits its easy removal and allows ready access to the radiator valve and to the interior of the enclosure for cleaning purposes.

**The space** between the bottom shelf and the floor may be enclosed with a molding strip fitted under each shelf.

The easiest way to paint the metal grille is with a roller which has been squeezed tightly in the paint pan to remove excess paint so that none will drip down between the perforations. The top ledge and shelves of the unit may be covered with plastic sheeting to give a clean, smooth surface. •

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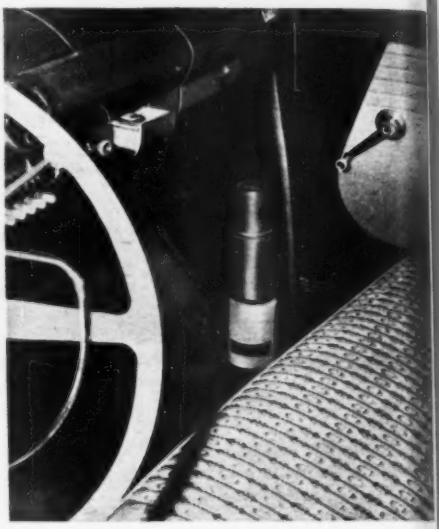
# CAR KINKS



**EMPTY** one-quart oil can secured to inside of car holds a thermos of hot coffee—welcome refreshment to the road-weary driver.

**REFLECTIVE TAPE**, applied to the edges of your car doors, warns oncoming drivers that you're either entering or leaving the car.

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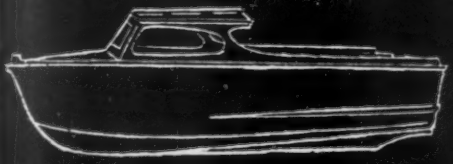
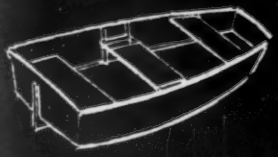
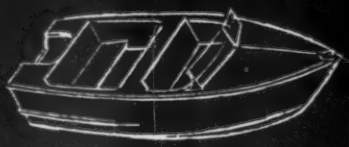


ROYAL MARINE DAY CRUISER

ROYAL MARINE 15 FOOT OUTBOARD



ROYAL MARINE PRAM DINGHY



ROYAL MARINE 13½ FOOT OUTBOARD

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# Golden Hammer Award Winners

WIND RIDER, a 28-ft. sloop, was built in two years of part-time work by Kenneth Rider, Long Beach, Calif. It sleeps four and has a galley and head; its apitong frames are planked with cedar; a diesel inboard pushes it along at six knots; building costs ran just under $4,000.

Each craftsman whose project is shown receives a 24-karat gold-plated Hammer and a Workbench Award Certificate. Runners-up will be sent a beautiful gold-plated Golden Hammer Tie Bar or MI's Certificate of Merit. So send us some *black-and-white photos, with negatives,* and a full description of your latest project. Photos of your workshop are also eligible. Send all entries, with return postage, to MECHANIX ILLUSTRATED Golden Hammer Awards, 67 West 44th St., New York 36, N. Y. Entrants are advised that MECHANIX ILLUSTRATED cannot accept responsibility for customs charges, duties, taxes, etc., levied against Golden Hammer and Golden Hammer Tie Bar winners outside the United States.

**The following craftsmen have been awarded GOLDEN HAMMER TIE BARS for their projects:** Arden R. Kincaid, Richmond, Va. . . . John Kernoski, San Diego, Calif. . . . C. Chelales, Massapequa Park, L. I., N. Y. . . . L. R. Chenoweth, Columbus, Ohio. . . . Leemer Gene Cernohlavk [Continued on page 155]

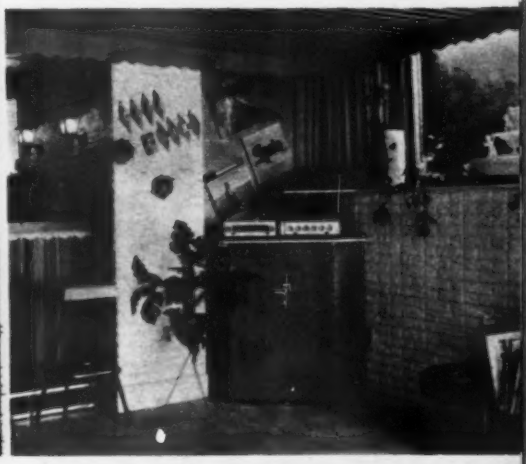
**WEEKEND WORK** built this full-time house. William Wedo, Phillipsburg, N. J., did all construction except electrical and plumbing jobs. House took four years to build.

**REBUILT** from a wrecked boat, this 12-ft. runabout does 30 mph with a 25-hp engine. Re-builder Floyd Rush, Eglin AF Aux. Fld. No. 9, Fla., is shown with his children.

**WHEELED BARBECUE STAND** was built for $5 by E. C. Johnson, Chatham, N. J. It has a redwood working table, circular grill and storage space for charcoal, gloves, tools.

**PINT-SIZE** Stutz-Bearcat, assembled from scrap parts for $100, does 10 mph with a 3-hp engine. It was built by Frank Burns, Brookhaven, Miss., for his 5-year-old son.

**KNOTTY PINE** Colonial dry sink shows the craftsmanship of George Horstmann, Stratford, Conn. It accommodates his hi-fi and TV sets and record collection. Cost: $70.



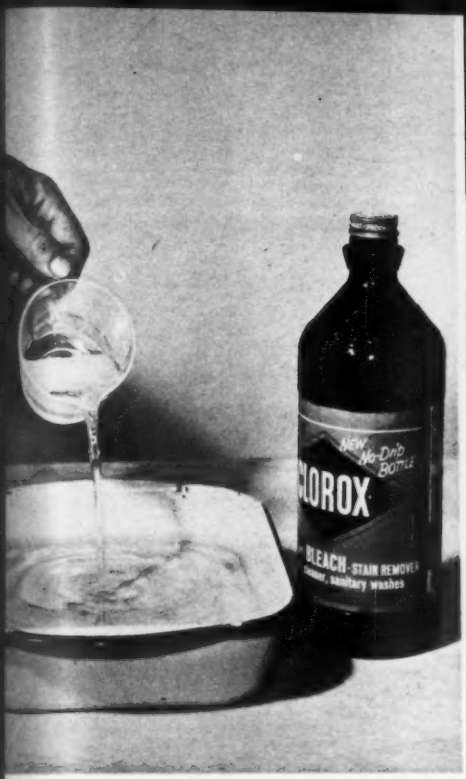
**BEAUTIFULLY FINISHED** basement room is the artistry of brothers Phil, Frank and Johnny Cammarata, Brooklyn, N. Y. Furnishings include bar, fountain, hi-fi, murals.

# PHOTO KINKS

**DARK SHADOWS** on photographs can be corrected after printing by the use of potassium ferrocyanide solution (half-teaspoon to four ounces of water) applied as shown.

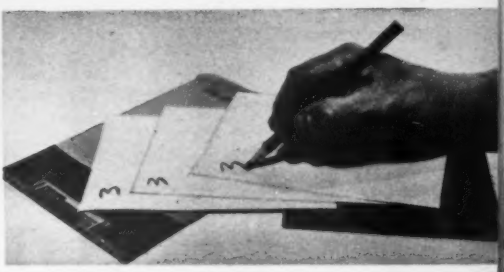
**INSUFFICIENT LIGHTING** shaded out one side of this girl's face until solution . . .

. . . was applied to bring out adequate detail. Action is stopped in the hypo bath.

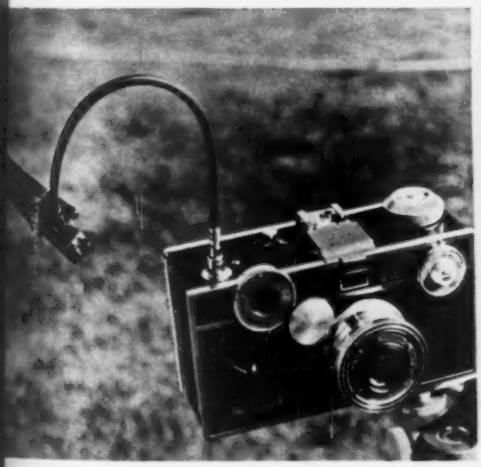



STAINED developing trays can be cleaned by soaking them with a mixture of water and bleach for 15 minutes, then rinsing.

"DARKROOM" is an overcoat draped over a drawer containing developing tray. While working, slip arms through coat sleeves.

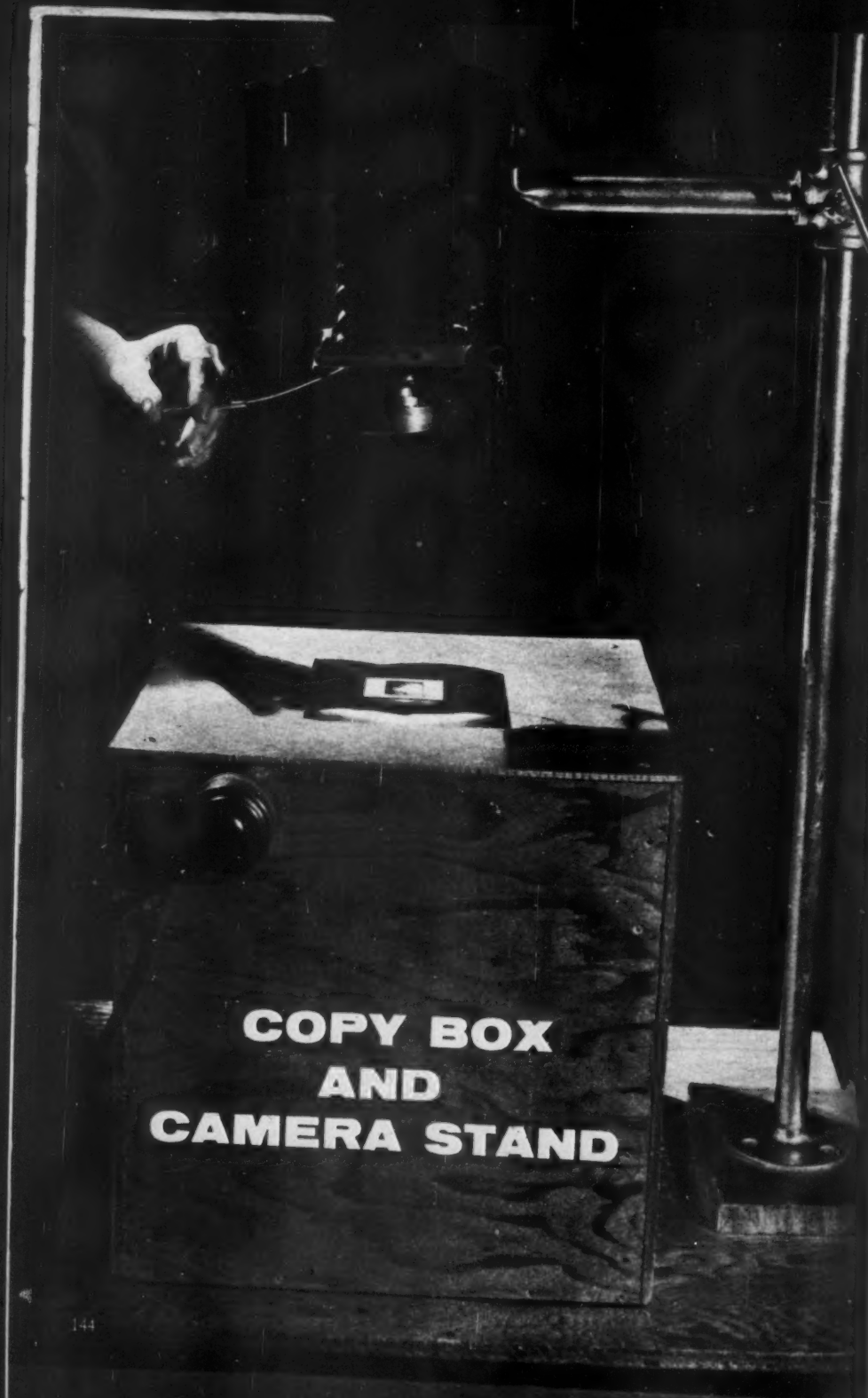


USE negative pencil to mark grade number on back of each sheet of printing paper. Numbers will be visible under a safelight.



IF YOUR CAMERA does not have a "time" position, use a notched spring-type clothespin to hold shutter at the "bulb" opening.

MAKE YOUR OWN borderless enlarging easel from ¾-in. plywood. Tack on masking tape sticky-side-up to hold print to the easel.



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COPY
light

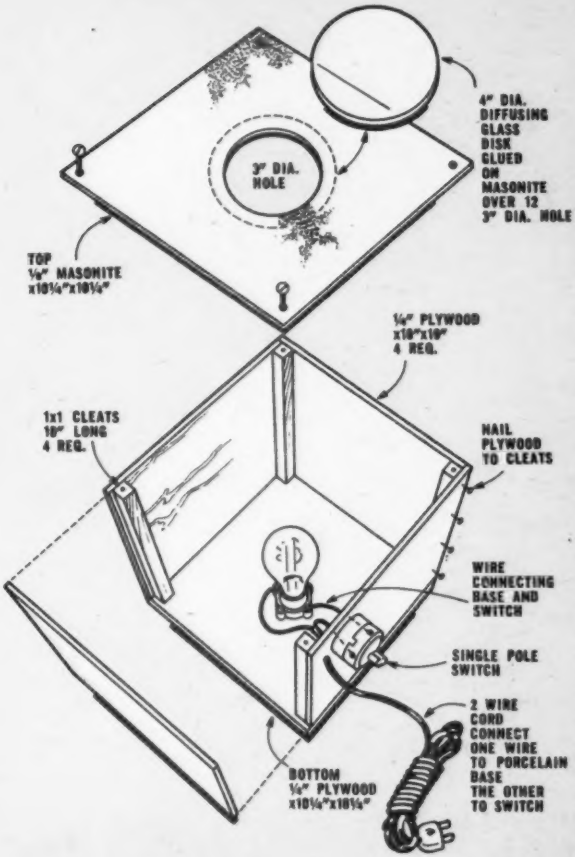
By Wayne Floyd

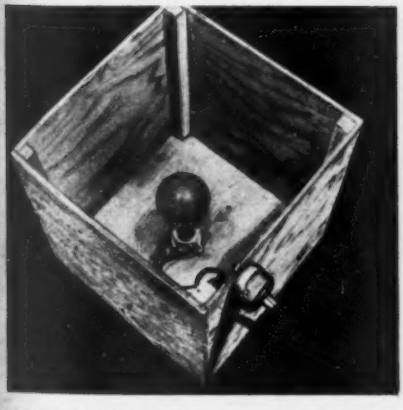
MOST photographers are familiar with the procedure of copying pictures by reflected light but the making of negatives from slides is not so well known. This copy box made from readily available materials will enable you to make negatives from slides professional quality.

The device is simply a plywood box with a light installed behind a diffusing glass in the top. A 100-watt bulb is mounted in the bottom and a light-control switch on the side of the box. Over the three-inch hole cut in the center of the Masonite box is glued a four-inch circle of diffusing glass.

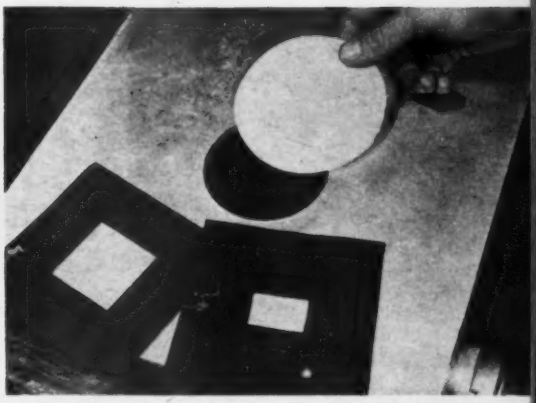
The camera stand is made from half-inch pipe sections fitted to a plywood base. The copy box sets on this base when slides are being copied. The vertical pipe acts as a tripod for the camera which is attached to a shorter section of horizontal pipe that can be easily raised or lowered.

## HOW TO ASSEMBLE THE COPY BOX

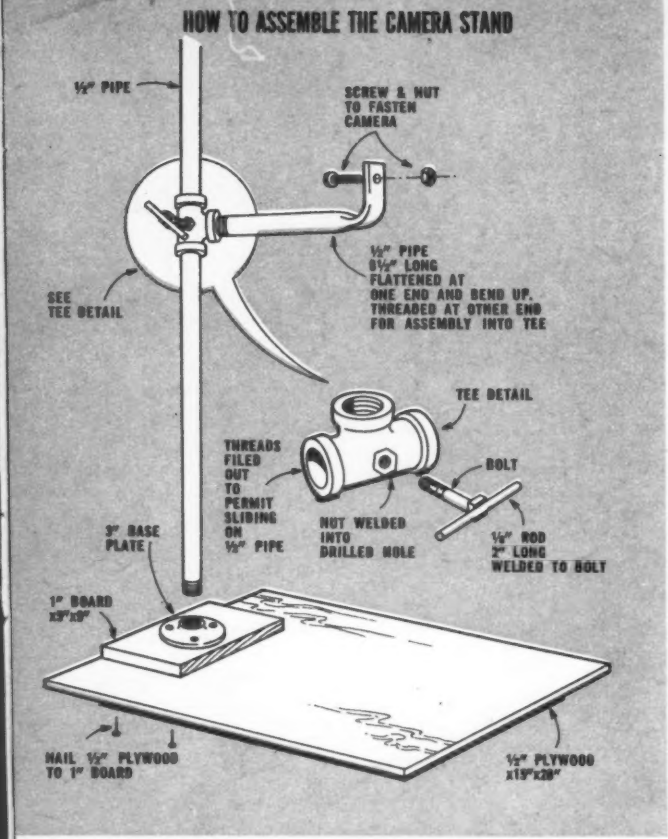


COPY BOX'S simple construction includes light socket with switch on side of box.



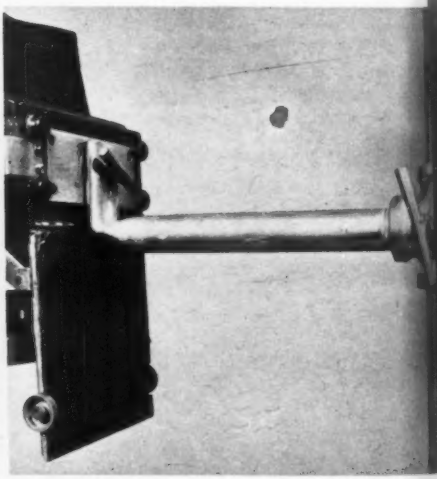
DIFFUSING GLASS is glued over hole in box top. Cut masks to fit around slides.




**To use** the copy box simply place it on the base board of the stand and insert your slide over the glass. Block out excess light around the edge of the slide with a mask cut from black paper. The exposure will vary with the intensity of the light, the density of the negative and the type of film used. If your camera is not the type with extension bellows for making copies and doing close-up work you'll need an accessory close-up lens. Try a test exposure before making a "run."

The camera stand itself can be used for copying pictures; just place them on the board under the camera. For illumination, regular photoflood bulbs are recommended. You will find that negatives made with the diffused light of this box are superior to those made by projection or other methods. •

**PIPE** screwed into base plate provides the vertical support at end of the camera stand.

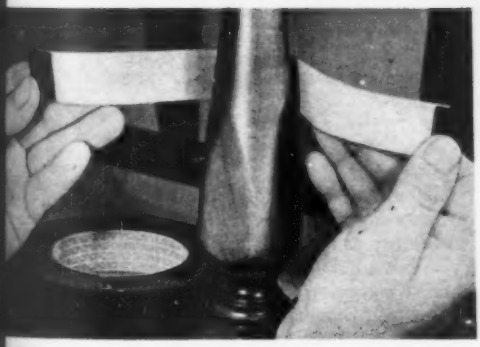


**CAMERA** attaches to short horizontal pipe which can move up and down vertical pipe.

LID OF CAN bent as shown supports paint brush in turp bath without warping bristles.

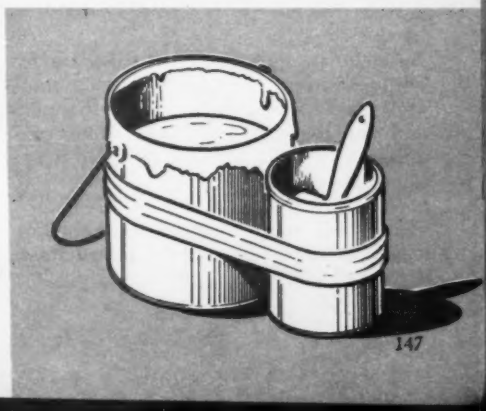
# FRESH PAINT TIPS

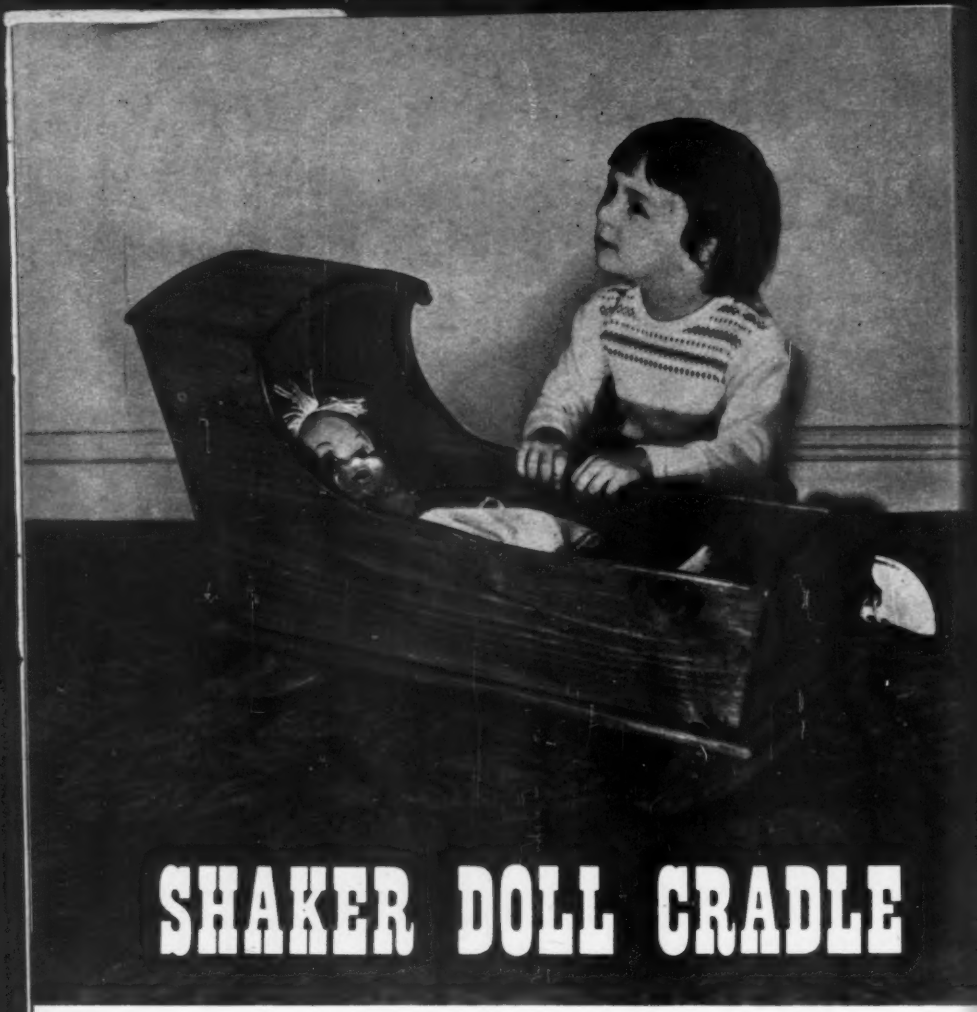
WHEN PAINTING from a tin can, bend lid halfway back so edge serves as brush wiper.



SANDPAPER used on round stock will last longer if it is backed with masking tape.

IF INTERRUPTED at painting, place brush in an empty can taped to the paint bucket.





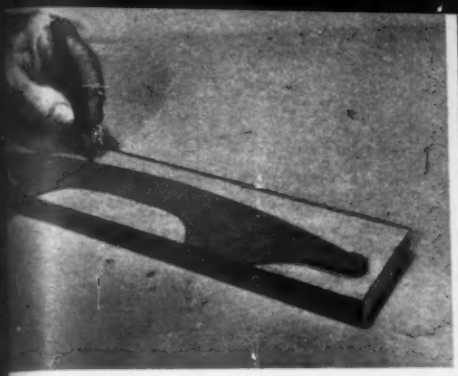
# SHAKER DOLL CRADLE

***With less than two dollars and an evening's time, you can build this charming doll cradle for a little girl.***

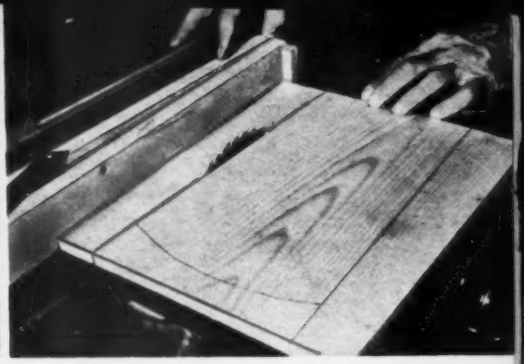
**By Ralph Treves**

YOU can delight any little girl by presenting her with this colonial doll cradle. It's quite simple to build and the materials cost less than two dollars—if you don't already have them lying around. In knotty pine, all you need is an eight-foot length of ½x12-inch stock and a one-and-a-half-foot length of ¾x6-inch stock. An oil stain is the only finish required.

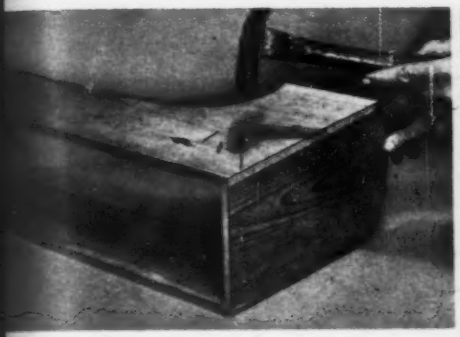
To make the cradle, just lay out a grid of one-inch squares on kraft paper and trace the outlines of the sides, for which you have a full pattern, and the runners and the canopy brace, for which you have half patterns. Then cut them out and trace them on the pine; the other parts can be drawn directly on the wood for cutting. Assembly is completed by using nails and screws as indicated in the photo captions and a cornering tool gives the antique effect which is heightened by the stain. •



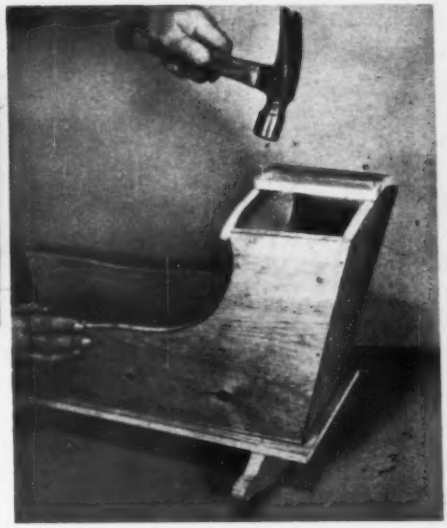
**PATTERNS** are cut from heavy kraft paper and their outlines are traced on the wood.



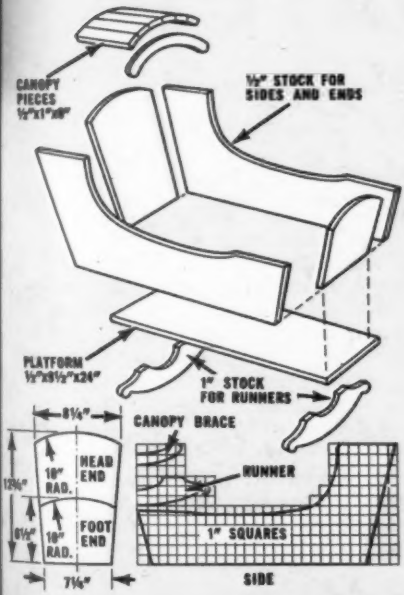
**TAPERED SIDES** of head and foot panels can be cut with circular saw or by hand.

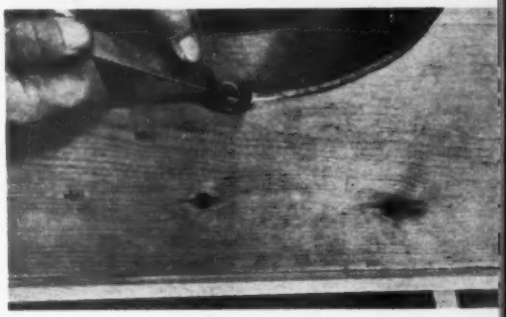


**NAILS** are used for most of the assembly but the runners are fastened with screws.

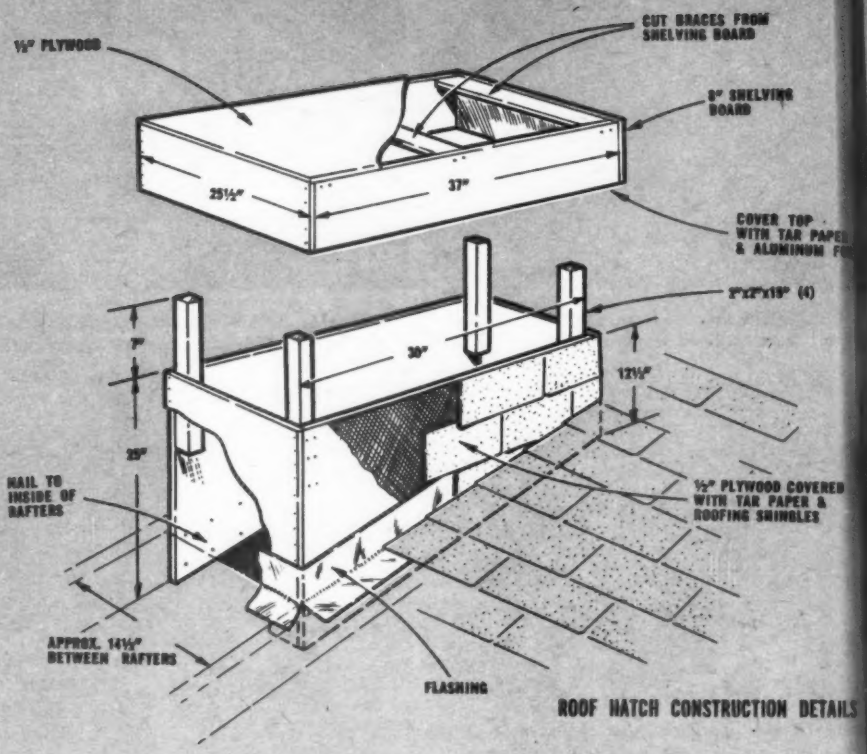


**STRIPS** of wood are nailed in place to form canopy. Screws secure canopy braces.



**EDGES** are "antiqued" with a cornering tool which removes thin slivers of wood.



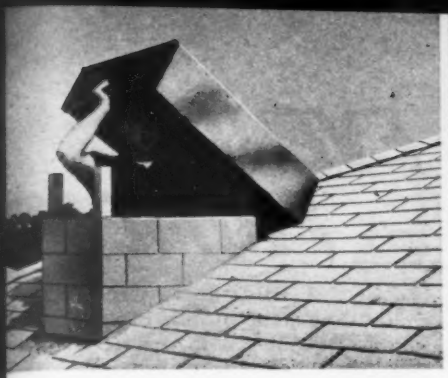
ROOF HATCH CONSTRUCTION DETAILS

# ROOF HATCH

***This installation gives you easy access to the roof and also helps ventilate the attic.***

**By Paul Hertzberg**

THIS HATCH will give you ready access to your roof and also provide an escape for that hot air that builds up in most attics during the summer. Start the job early in the morning and you'll probably be done by evening. First select the roof area where the hatch will be located and mark it off between two rafters. Drill a hole through the roof at the midpoint of each of the four sides, then saw out the section and remove it. Now cut the plywood sides to size and nail them in place against the rafters, butt-jointing the end pieces. Cut, then nail the four 2x2 lid-supporting corner posts in place so they extend seven inches higher than the sides. Staple tar paper to the exterior of the sides, smearing the ends with roofing cement and tucking them beneath the existing paper under the roof shingles. Nail and cement the aluminum flashing in place at base of the hatch so that it fits under the shingles and against the hatch sides. Finish up by shingling the hatch all around. Construct the lid, covering it first with tar paper, then with aluminum foil to reflect the sun's heat. •



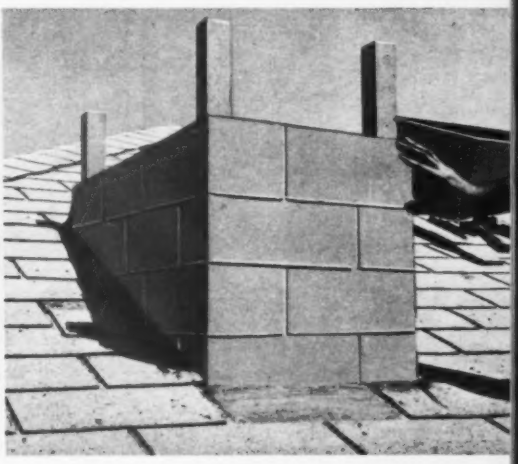
WITH LID OF THE HATCH REMOVED, light and air are admitted to the attic below.

USE keyhole and crosscut saws to cut out hatch opening between two attic rafters.

HERE'S HOW completed hatch opening will look before plywood sides are installed.

INSTALL hatch sides by nailing them to the rafters and butt jointing their ends.

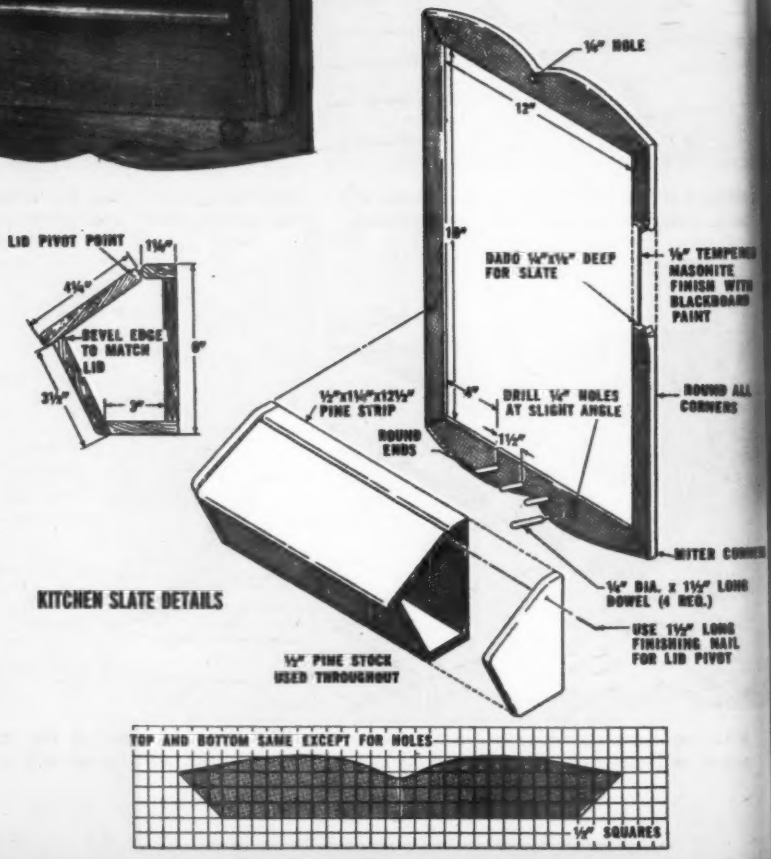
NAIL corner posts in place, apply the tar paper and cement flashing around the base.



SHINGLE the sides of the hatch, top it with the lid and the project is completed.

# EVENING PROJECT

KNOTTY PINE and a piece of Masonite make up this Early American kitchen slate with storage bin and peg rack. Make the frame by tracing a template for the top and bottom pieces on half-inch graph paper. Drill the peg holes at a slight angle so the pegs will tilt up. Cut the frame, then dado along the back edge of each section to provide a recess for the slate. Make the storage bin and attach it as shown. Apply two coats of blackboard paint to the Masonite slate, sand and varnish frame and bin, then secure the slate with brads. •




KITCHEN SLATE DETAILS

# Glue it right the first time with the right Weldwood Adhesive

**Quick, clean** Presto-Set® Glue, the all-purpose glue, bonds paper, wood, cloth, china. Dries fast, won't stain. Handy new bellows-action squeeze bottles with spreader tops. From 39¢.

**Bonds instantly on contact.** Weldwood Contact Cement permanently bonds plastic, leather, and wood. Needs no clamping, and is water-resistant. Stays flexible. From 29¢.

**Strongest** of them all is Weldwood Plastic Resin Glue. For heavy-duty jobs. Makes joints even stronger than the wood itself. Mixes instantly, is water-resistant. From 40¢.

**Waterproof** and best for lawn furniture, boats, Weldwood Waterproof Resorcinol Glue makes a powerful bond on most porous materials. Resists rot, fungus, heat, cold. From $1.15.

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**WELDWOOD**
ADHESIVES

*Products of United States Plywood*

## Winter Starting

[*Continued from page* 123]

with a carbon tetrachloride fire extinguisher.

If the engine cranks fast enough but won't go into action, the first step is to make sure there's spark. Take off a plug wire and hold the tip within a fraction of an inch from the engine head while someone turns the starter key. If spark jumps the gap, ignition to the plugs is good enough. However, the plug electrodes may be fouled with carbon and oil and a hint that this has occurred is steadily increased difficulty in starting each morning. Burned breaker points will also bring on progressively delayed starting. A leading cause of burned points is excessively high primary current.

Hard starting may also be caused by ice in the fuel filter bowl. Hot water poured on the carburetor bowl, fuel line and fuel pump will help get the fuel flowing again. Ice in the water pump, however, isn't so easy to overcome. Here the engine won't crank and the car has to be towed to a warm place for thawing out.

An owner who must leave his car out in the cold continuously should try to park on a grade at night, blocking the wheels for protection. This offers the prospect of getting the engine started by coasting. With a stick shift, switch on the ignition, move the lever to High and coast with the clutch pedal down. When the car is moving at 15 mph, allow the clutch pedal to come up. There are various ways to coast-start cars with different types of automatic drives, but in general the trick is to turn the ignition on, depress the Low button and step on the gas. The car will start at about 25 mph. However, it is not possible to coast-start cars with the newer Hydramatics.

Many drivers foul up starting by flooding the engine. Flooding can be detected by the odor of raw gasoline. At this point, wait a few minutes and don't crank again until you have pressed all the way down on the accelerator pedal without pumping it. Cranking at wide open throttle will allow the pistons to suck in more air, clearing the cylinders for normal firing. Continued difficulty may mean that the automatic choke needs adjusting toward a richer mixture, but don't move the setting of the choke coil more than one degree before testing out results.

Starting trouble is often due to the choke lever being cramped by the air cleaner. This big unit on top of the motor is likely to be jarred into an abnormal position and adjustment will correct the fault. While the manifold heat control valve doesn't affect starting directly, it may contribute to trouble because of failure to close when cold. The engine is then slower to warm up and may stall more, thus fouling the plugs.

The starting motor itself is often overlooked. The commutator may be dirty or its brushes badly worn. Be sure to check the battery cable if the car has been in use for some years. Another source of trouble is the neutral starting switch on cars with automatic drive. Sometimes the switch will fail the first time the driver moves the lever to Neutral or Park but will function if he repeats the process. This is a hint that the switch should be replaced. Modern combination ignition and starting switches also can be troublesome. Here again it pays to repeat the switching on process. Any smoke at the key is a plain sign of trouble.

If your car has a stick shift, you can help cold starting by holding the clutch pedal down. This relieves the battery and the starting motor of the extra effort needed to turn over a lot of gears in the cold, congealed transmission lube. In most cases, one press of the accelerator pedal is enough to set the fast idle control and choke, but in many cases a couple of jabs on the pedal will be needed. To avoid flooding, always try a single slow press on the pedal first.

If the car is within reach of an electric outlet, the hard starting problem may be solved with a headbolt heater. You can vary this with a heater to keep the oil warm. Even an electric light bulb under the hood will help if allowed to burn all night. The particular value of a headbolt heater is that the entire engine is ready for action in the morning and is not likely to be damaged by going into action before its oiling system is ready.

Few drivers give it a thought, but starting trouble is often due to a slipping generator belt or a poorly grounded generator regulator. Weak fuel pumps are also a source of trouble. Occasionally, ignition timing is found to be too far advanced. Then too, breaker points are often burned because of oil vapor working past a worn distributor shaft, especially where there is excessive crankcase pressure through clogged vents.

In your final warm-up on this cold subject, don't forget that a set of hotter spark plugs will help by overcoming the tendency of a worn motor to foul its plugs. The simplest trick of all is to give the car the benefit of more daylight travel. It helps keep plugs clean, charges the battery, eases valve stickage and burns diluents from the oil. After all, the way a car runs has everything to do with the way it starts. •

## Golden Hammer Awards

[*Continued from page* 140]

**Washington, D. C. . . Emery T. Renshaw, Bangor, Me. . . B. D. Margerison, Richmond, Va. . . Thomas Z. Hamilton, Culver City, Calif. . . E. J. Ogann, Brockston, Minn. . . Ben B. Caldwell, Lockport, N. Y. . . Irv Meyer, Export, Pa. . . Greg Kennelly, Indianapolis, Ind. . . Mr. and Mrs. J. T. Grueninger, Columbia, Ill. . . Karl J. Ertler, Portland, Ore. . . Clyde Miller, Sr., Costa Mesa, Calif. . . Stanley Hoffman, Vandergrift, Pa. . . Bennie Ficarrotta, Tampa, Fla. . . George Sipkoski, Dayton, Ohio. . . Thomas H. Pratt, Jr., Jamaica, W. I. . . E. E. Miller, Champaign, Ill. . . J. M. Hennington, Buena Park, Calif. . . . Raymond Laffee, Chicago, Ill. . . Pvt. William P. Gray, Fort Bragg, N. C. . . J. C. Black, Mobile, Ala. . . G. C. Lockridge, Balboa, C. Z. . . E. Zelenak, Uniontown, Pa. . . Frank J. Convertine, Nassau Shores, L. I., N. Y. . . William Clendinnen, Jr., Coram, N. Y. . . James Kirsh, Beaver Dam, Wisc. . . Fred R. Taylor, Roseville, Ill. . . Douglas Mattix, Dallas, Tex. . . Raymond Kriley, Stockton, Kan. . . R. E. Williamson, Jr., Atlanta, Ga.**

**The following craftsmen have been awarded CERTIFICATES OF MERIT for their projects:**

**The Frank Wesley's, Roosevelt, Wash. . . Stephen H. E. Herring, New Westminster, B. C., Can. . . Alfred F. Fleury, Franklin Park, N. J. . . S. J. Marais, Melville, Johannesburg, S. A. . . Harvey Harris, Boothwyn, Pa. . . Fred S. Norcross, Jr., Roswell, N. M. . . Charles Remese, Yarrabumba, Canberra, Australia. . . Homer T. Cato, Thomasville, Ga. . . J. C. Black, Mobile, Ala. . . Joseph DePaulos, Oakland, Calif. . . Alvin Press, Spring Valley, N. Y. . . Larry Pyke, San Diego, Calif. . . Werner N. Jochum, Denver, Colo. . . Harry H. Guthrie, Shiloh, Ohio.**

**Look for names of more winners next month.**

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- **Quick Change Gear Box—gives you 54 feed rates or thread pitches.**
- **¾" Collet Capacity—largest available in any comparable lathe.**

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**ROCKWELL**

## Components Cabinets

[*Continued from page* 116]

center section in place. The center is held with bridges which were purposely left in the jigsawing operation. This is done to provide support while clamping, thus preventing damage when pressure is applied. After clamps are removed, the center is dropped out by cutting through the gaps with a keyhole saw.

Edge and front trim is now attached to conceal raw edges. Solid stock was used. However, you may like to try the tape-type veneer. If you do, be sure to allow for the difference in thickness.

Doors are next. Trim to size on the circular saw then plane and sand all edges smooth. Now prepare the molding by cutting the solid stock on the shaper using the same cutter that was used on the speaker cabinets. Cut and miter slightly oversize then bring to size by careful sanding. To prevent shifting of the molding when glueing, use headless brads to serve as blind line-up pins. Clamp as shown with scraps of inverted molding to obtain a parallel surface for the clamps.

**Position** the knife hinges and make the necessary mortises. Use a small chisel and remove enough wood so the hinges will lay flat and flush. Bullet catches are also attached at this time.

Because of the heat generated by the TV set, tuner and amplifier, the backs of the cabinets are left open. The rear of the record and turntable compartments are backed with quarter-inch Masonite.

Sand cabinets smooth, stain and finish to match the speakers. Now you can settle back and take in some real enjoyment. Strike up the band! •

LIST OF COMPONENTS

| | |
|---|---|
| **Speakers** | Jensen Stereo Director, kit KT-244, with 15-in. Flexair woofers |
| **Tuner** | Knight Stereophonic, KN-125, for AM-FM and stereo reception |
| **Amplifier** | Knight, 34-watt stereophonic, KN-734, 17 watts per channel. |
| **Turntable** | Rek-O-Kut, Rondine, N-33H |
| **Tone Arm** | Rek-O-Kut, Model S-120 |
| **Cartridge** | General Electric, Golden Classic |
| **TV Set** | RCA, 17-in. table model. |

## Party Tray

[*Continued from page* 106]

once again put the assembly aside to dry.

Set one leg of your compass in the center of this block, mark off the assembly to its widest diameter, then round it by cutting along this circumference line with a band saw. Now mount the stock on a small face plate and turn it to shape on your lathe.

**Next,** mount a two-inch-square block of maple (or whichever light colored wood you've used) on a screw center of the lathe and turn the server-holder knob. When finished, glue it in the hole in the center of the tray.

Remount the tray in the lathe to do the finishing. A good natural finish is achieved by fine-sanding between applications of sealer, allowing adequate drying time between each coat. After smoothing with steel wool, bring the tray to a high gloss by rubbing on four or five coats of paste wax.

The servers are ¾-inch maple dowels tapered and finished on the lathe, then mounted on pointed lengths of ⅛-inch drill rod forced into a center hole drilled in each server. With the drilling of the small, angled holes for the toothpicks, the project is completed. ●

## Tile-Topped Lamp Table

[*Continued from page* 130]

the wood grain and spoil the possibility of an unblemished finish. On open-grained woods, it is best to apply a natural paste filler first and follow it with a cherry stain. The filler can be omitted on a dense wood with close grain. Follow the stain with three coats of varnish.

**The tile comes next.** A large assortment is available from local dealers but the easiest ones to apply are those which come pre-laid on a cloth or paper backing. Use waterproof glue to secure the sheets. Then you mix the grout, adding casein color if desired, and work it in between the tiles. Excess grout is wiped from the surface with a damp cloth.

After the tiles are in, the shelf and its supports are installed. The procedure is obvious from the drawings but care should be taken in aligning the dowel holes. •

## Tom Tests '61 Pontiac

[*Continued from page 92*]

one of these crews made the following statement (which I have on tape): "Carrying 30 pounds pressure when 24 is recommended can almost double tire life, and when 36 pounds are used, the tire life is almost tripled."

This bears out my findings of years of testing tires professionally. Most manufacturers recommend low tire pressures for two reasons: first, to achieve a soft ride; second, to cover up engineering and assembly blunders on their product. They figure at these low pressures door handles will stay on a little longer before falling off and rattles will be deadened a bit longer. Factory-recommended pressures can be actually dangerous and definitely lessen the safe handling of any car. Personally, I carry 32 pounds all around in my cars, to answer once again an often-repeated question in my mail.

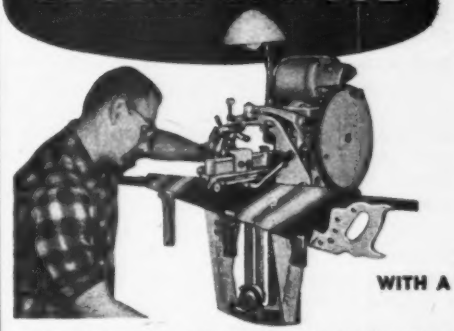
Back to the '61 Pontiac! This is the on-the-ball car of the General Motors camp, and its prexy, being a good quarterback, has no intention of relinquishing his lead, even though he is two touchdowns ahead. In these days of equations and formulas, every manufacturer of medium-priced automobiles is painfully aware that Semon E. Knudsen has solved the problem of how to sell automobiles.

Knudsen is a realist and in this he differs from some company presidents who are still wearing their Alice In Wonderland suits. The basic reason for Pontiac's success, which started shortly after Knudsen took over, was in giving the medium-priced buying public what they wanted, no matter what it was. Pontiac has a goody for nearly everyone but so do a number of other cars. Pontiac, however, stands out from the others through a more realistic and perhaps more honest approach. If you're the kind of guy who wants a few for-instances, here they are: If you want polka-dot fenders, Knudsen won't say you're nuts (as some other prexies would), he'll just find out if there are enough guys who want polka-dot fenders. If there are, he'll build them.

Now let's go to a more important plane. When the Automobile Manufacturers As-

[*Continued on next page* ]


you can always
**BE SURE OF A JOB**



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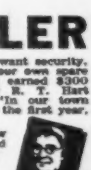


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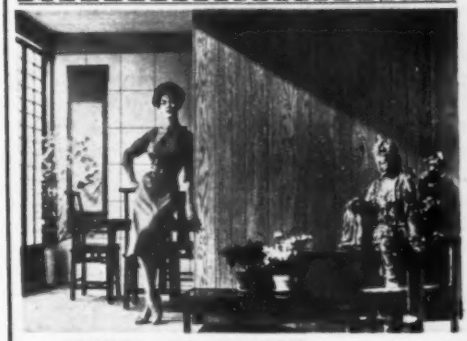

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sociation banished all race competition by the factories and performance emphasis in advertising, the other members of the A.M.A. overlooked one important point: The guys who were buying the cars didn't give a damn what the A.M.A. thought or what the manufacturers thought, either. If they wanted high performance with its definite pride-of-possession appeal to many male buyers, then they were going to buy the car that gave it to them. Ed Cole, head man at Chevrolet and king of the low-priced field, never lost sight of this fact, either. It took Chevy many years to catch up to Ford as a performance symbol and Cole knows this sells a lot of automobiles.

**After Pontiac's** first year as Champ of the medium-price field in 1959, I personally asked Knudsen what he thought was primarily responsible, the good looks of the '59 or the car's performance successes that had made it tops at Daytona Beach that year. Without batting an eye, Knudsen answered, "The top performance of our cars can take at least half the credit."

Pontiac offers looks without giving up any of its athletic prowess over the road. A man can buy a Pontiac with very little fear of being embarrassed in a drag race with a traffic light or in a short tilt down the turnpike. The wife of this same buyer won't have to apologize to any of the girls in her snooker circle for the car's looks and appointments either, nor will the ride displace Old Lady Mushcan's sacroiliac. In other words, Knudsen and his well-mixed bag of pixies have fielded a car that just doesn't ignore anyone.

**There are enough** engine combinations for the '61 Pontiac to keep the parts manager in perpetual motion. All are V8s of 389-cubic-inch displacement with the exception of the Tempest 4, which we'll report on next month. They range in horsepower from 215 all the way up to 348. The economy models of the standard Pontiac have an 8.6:1 compression ratio, burn regular fuel and feature two or four-barrel carburetion. In the other combinations with compression ratios varying from 10.25:1 to 10.75:1, four-barrel or three two-barrel (Tri-Power) carburetion is featured. In fact, with the equipment available and a big order sheet, it's almost possible to order a custom-built engine to your specifications, providing it displaces 389 cubic inches.

Our test car was the four-barrel, 10.25:1 compression ratio rig rated at 303 horsepower. Performance-wise, it was a happy average, meaning neither the hottest nor the coldest. Zero-60 mph averaged 9.6 seconds and top speed ranged between 114-117 mph. For the record, in showroom condition the hotter combination Tri-Power will crack eight seconds for 0-60 mph and, with a good tune-up, exceed 120 mph with ease. The nice thing about a Pontiac, especially in a saloon conference, is that all standard Pontiacs look more or less alike, so the guy with the economy engine gets the same pride-of-possession boost as his neighbor who owns the wildcat version. Neither one will ever notice any difference unless they meet on a drag strip. For the real connoisseur there are two manual transmissions available, either three or four-speed synchromesh. With the four-speed box and Bonneville Tri-Power, if you can't whip up to 60 mph in seven seconds your reaction time and shifting ability are strictly bush.

**In summing up,** Pontiac, the undisputed King in its price bracket, will undoubtedly still be top car when '62 model time rolls around. If any of its competitors are wondering why, here's the simple formula once again: If you want good looks, Pontiac has them; if you want performance, Pontiac has it. You can disregard the rest of the features, including comfort, because Knudsen has proved that styling sells a lot of cars and performance sells many more. Mate the two and you have a combination that's hard to beat. •

## Tom Tests Olds F-85

[*Continued from page* 96]

variations will filter down to good old Joe Bloewe, typical car buyer, whose main concern is, "When I turn the key, will it go?" Of course, all three V8 engines, Tempest, Special and F-85, will be subjected to close scrutiny by the hop-up men and, not long after you read this, reports are bound to come in from various speed centers about how these jobs adapt for racing. At the compact car race at Daytona this winter, droves of these rigs from all three

camps are bound to turn up.

**Let's take the F-85** for a drive. In my four-door test job I found the power steering as effortless as any car I've ever handled. This one definitely has a big-car feel over rutted roads and there is ample legroom both in front and back. The headroom is phenomenal but I feel this was achieved in a slightly unusual way. The front seat is extremely low and jockey-size drivers may need either a cushion or a power seat in order to see over the steering wheel. Like the Black Angel, this car is not entirely free of faults—so let's roll them out on the table.

When driving in heavy traffic (and here's a new twist) the sedan, with its overall height of 52.6 inches plus low seating, makes visibility through the rear window and windshield of the car ahead almost impossible. It's like driving behind a huge truck, unless the car ahead is another worm-presser or a low sports car—a minor complaint, perhaps.

**When driving over** winding, twisty roads with a good head of steam, the tail is a little light and has a tendency to slough and chatter over ruts. After a few miles of this, a good driver will unconsciously compensate and that should be the end of that problem. The suspension—and this isn't really a fault (unlike the Buick Special)—is coil-spring all around, which allows the body to develop a heady list on turns, though there is no plowing evident.

Another slight fault that could prove annoying would be pretty hard to correct. When cruising along at a steady 50 mph, opening the front window and vent causes an irritating wind current to circulate in the interior and hit you right in the back of the head. This is also true for the front-seat passenger in the sedan at those speeds. Regardless of where you adjust the vent windows, these air currents can't be suppressed and the only way you can get rid of them is to open the rear window behind your head. Now, as you know, there are many times when you won't want more than the front window open. This little aggravation would be hard to correct as it is undoubtedly caused by the design of the body shell. The only solution possible without altering the body shape would be through differently designed vents, pos-

[*Continued on next page* ]

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sibly like the rear vents used by the Mercedes 300.

**Another fault** (not with the sedan) was in the F-85 station wagon I examined. It is a beautifully-styled wagon with loads of room but it had one serious drawback—the rear tailgate window cannot be opened! The only way you can vent through the rear is to open the entire tail assembly from the bumper up. I understand this oversight may be corrected by the time you read this.

Well, kiddies, those are the faults—now let's look at the goodies. The hood is held down by not one but two separate hood clips up front. This may seem trivial to you but at least 25 per cent of the fast cars that ran at Daytona Beach last year had to have their hoods strapped down because they had a nasty way of tearing loose and folding back over the top line, seriously obstructing vision—as they say in the coal mines when a light fuse blows. This is a good feature. Another good feature—the car has a large-sized glove box that could accommodate Yogi Berra's catcher's mitt.

The Hydramatic-type transmission is excellent and there wasn't the slightest sign of creep at red lights or stop signs. The performance was good, size and automatic transmission considered. It batted out 0-60 mph in 13.5 seconds and the stick job could undoubtedly knock two more seconds off this. Top speed ranged between 96-99 mph on several runs and, with a real tune-up, it would undoubtedly break 100 mph which should be fast enough for any compact fan.

**In summing up,** though it may sound trite, I think this is a real nice automobile. It's big enough for 95 per cent of the jobs anyone would use a car for. It handles like a feather and, frankly, it's a lot more pleasant to drive and makes a helluva lot more sense than many of our larger cars selling for hundreds of dollars more. It has some faults but then so did Babe Ruth. My advice, if this type of car interests you, is to go to your friendly Olds dealer and get him to let you try one. It may be just what you've been looking for. In my book it goes down as one of the top compact offerings. •

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## Bass Fishing in Winter

[*Continued from page* 58]

more famous are Bull Shoals Reservoir in Arkansas-Missouri, Lakes Mead and Havasu in Arizona-California, Dale Hollow Reservoir in Tennessee-Kentucky and Lake Cumberland, Kentucky, many lakes in South Carolina and Georgia and in all the Gulf States.

**What lures should you** take along? It pays to buy bass lures locally when fishing unfamiliar waters, especially lakes and large rivers. Often plugs, spoons and jigs that murder bass back home won't get a look from fish 100 miles away.

What about Florida bass fishing? Old timers will tell you that you can fish a different Florida lake every day of the year for more than 50 years and never fish them all or get to any of the excellent bass rivers.

Florida bass are all largemouths but of a local sub-species. They grow larger and faster than other bass. Last February while fishing out of Camp George on the St. Johns River in the area of Fruitland, Will Glen, one of the best guides in the business, brought in two 12-pounders in one week. His sports caught them in Lake George, a vast widening of the river nearby. Besides this, his sports landed a number of eight- and ten-pounders and so many two- and three-pound bass that no one bothered to count them.

**Where are the best places** to fish in Florida? Tops on my list is Lake George in the St. Johns River, and next is the St. Johns itself all the way upriver to Lake Helen Blazes. You'll find lots of fishing camps with all types of accommodations, guides and boats. It's a good idea to make reservations well in advance.

Third on my list is Lake Okeechobee in the Everglades. Although Okeechobee is enormous, a tall man can wade much of it. It is loaded with vegetation that grows all year and from the amount of sunlight the lake gets, the vegetation and warm water make the lake the most efficient bass factory on earth.

**How do you fish for bass** in winter in Florida? Nine out of ten guides say there is only one way to bass fish in January, February and March—with live minnows. At this time bass are moving onto their

beds in the shallow, grassy areas of lake and river. Anglers scout along, either poling their boats or motoring slowly, while standing up scanning the water for signs of bedding bass. When they spot one of those weed-free circular cups in the bottom that denotes a bass bed, the anglers try to spot the fish to see if he is on the bed. If so, they cast a minnow so the bait lands in the center of the bed.

No bass worth his scales is going to let even a minnow invade the privacy of his bed. So he charges it and the fun begins. The proper technique is to let the bass have the bait and mouth it. The fish will usually move off the bed slowly with the bait in his mouth. Then he'll grab it again, this time head first, and swallow it. This is the angler's signal to lean back on his rod and set the hook, hard.

**This does not mean you** can't catch plenty of bass in Florida on artificial lures. You can. But you must know how. Plug fishing the big rivers pays off and so does fly rod fishing with huge streamers and bugs. This calls for precision casting in order to get the lures in under the heavy overhanging vegetation, on the very edge of the hyacinth jungles.

Trolling and wind-drifting weed-free areas of lakes and rivers with plastic worms and eels, letting the lures skim the bottom, also pays big dividends at times.

**Many anglers balk** at hiring a guide. Believe me, the $13 a day a good guide will cost you will save you days of expensive fishing over barren water, with the wrong baits and lures and in an unproductive manner. Get the best guide you can find. But it's wise to have an understanding, before you start out, that you will do all the fishing. These old pros are boyish enough to crowd you otherwise.

Good luck and happy fishing! •


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**MIDGET MOTORS CORPORATION, ATHENS 3, OHIO**

# Big Boom In U.S. Stamps

[*Continued from page* 67]

classified ads in MI and other publications, including your daily papers. Dealers will sell you assorted stamps at 50 for 15 cents, hundreds for a dollar. Rural collectors generally use the approval system—dealers send them booklets of stamps and the collectors take those they like, send the rest back with the payment for those taken. When ordering stamps on approval specify the kind you want and the money you can spend: otherwise the dealers will swamp you.

**Beginners often feel** timid about buying through the mail, wonder if it isn't better to go to the dealers in person. Not necessarily. At the dealers you can browse through his stock, taking all the time you want. With approvals you can do the same at home.

*Where do you learn the lingo?*

From books at the public library or the dealer's—but here's a start. First, stamps are graded *superb, very fine, fine* and *good. Superb* means flawless; *very fine* means having only minor flaws, such as a slight unclear postmark or a perforation defect. A *fine* stamp may have imperfect perforations, color and postmark all together; and a good stamp may have perforation teeth missing, faded color and a cancellation that's much too heavy. It is better to have a collection of 1,000 stamps of superb or very fine quality than a much larger collection padded with stamps that are merely fine or good.

*Commemoratives* are stamps honoring some special event or person. First U. S. commemorative was the Columbian issue, 1893, commemorating the 400th anniversary of the discovery of the New World. Commemoratives come out frequently.

*First day covers* are envelopes bearing stamps cancelled on the first day of issue. To get these, follow the newspapers or stamp collecting publications for Post Office announcements. These often list the city where a stamp will first be sold. Write a letter to the postmaster there, enclosing a self-addressed envelope and cash or money order to pay for the stamps. You will get the envelope back with the stamp; the stamp will be cancelled with the words "First day of issue."

*Plate blocks.* All stamps are printed from plates in large sheets and somewhere on the sheet will appear the number of the plate. A block of four or more stamps together with the plate number is a plate block, much prized by philatelists.

*How do I join a stamp club?*

**Ask about them at your** local stamp dealer's. If there are no clubs in your area maybe you and some other collectors can form one. They are useful, sociable organizations and very helpful to the beginner. Here he learns things like how to remove stamps—you soak them off the envelope in cold, slightly salted water, pick them up with tongs and dry them on a blotter or cloth and press, if necessary, in a book. He learns about catalogue prices—they're only approximate and they're based on the value of *"very fine"* stamps.

*Do you end up with a valuable piece of property?*

A good stamp collection is worth money. You can borrow money on it from loan companies. There is no duty on stamp collections; they can be taken from country to country. This was of great importance to hundreds of refugees from Nazism, who landed here stripped of everything valuable but their stamps. Top collectors get real money when they cash in—Arthur Hind of Utica, N. Y., sold his for $1,000,000.

*What treasures do you start looking for right away?*

**Well, the 12-cent black** of the August 1861 issue is worth $5,000. It was issued at the outbreak of war, then invalidated. A block of four unused ten-cent blacks 1847 issue, is worth $8,500. Used they're worth only $6,000. A block of four 90-cent blacks, 1869 issue, is worth $2,500 new, $1,000 used. The 15-cent brown and blue of the 1869 issue with the center inverted will make you $10,000 richer if new, $2,000 if used. These are only some of the rarities.

Rarities are the goal of every collector but the hunt itself is fun. Stamp collecting combines the relaxation of an arm-chair hobby, the lure of gold and the companionship of fellow fanatics. So even if you don't make a fortune in stamps you'll be repaid for what you put into a collection. Fifteen million collectors can't be wrong! •

## R-C Model Airplanes

[*Continued from page* 75]

type plane.

One of the biggest assists that the old-pro can offer the learner, once the model is completed and at the flight line, is help in trimming out or adjusting the model for the most satisfactory flight. A plane seldom comes off the workbench without need of this adjustment. The plane should be trimmed to climb straight ahead when under full power, and to descend straight ahead on low power or in the glide.

**The beginner can expect** a few crackups with his precious plane—it even happens to experts sometimes. Learning to fly R/C is not really difficult but it does take practice to learn timing and plane reactions. The beginner is usually wise, the first time out, if he allows an old hand to get the plane into the air for him before he takes the transmitter. If the plane has altitude he can get the feel of the controls without much danger of losing his ship. When he first solos the learner should stick to straight and level flight, gentle turns and landing.

Although there is no national roster of club names and locations, the prospective R/C modeler can easily obtain the meeting time and place of the club nearest him by dropping in on his hobby dealer.

**According to** Polk's Model Craft Hobbies, 314 Fifth Ave., New York, N. Y., one of the largest handlers of R/C equipment, about 20 R/C manufacturing firms cater to this huge hobby. Since R/C flying is a hobby that requires a good deal of time, the entire family is inevitably drawn into it. Some clubs encourage their members to bring their wives to the meetings and have a social affair afterward.

The R/C modeler, they say, can get glow fuel in his blood after a slight exposure. Doctors who are R/C hobbyists admit that they have found no cure—not that they are looking for one! •


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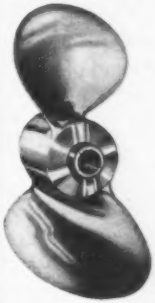

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## Detroit's New Engine

[*Continued from page* 69]

the rear wheels of the vehicle through a speed reducing gear case and differential.

The gas turbine engine provides a much smoother drive force and has many other advantages. With the proper silencing device, it is quieter than a reciprocating engine and because the sound is high frequency, it is more easily dealt with by sound absorbent materials.

By using a regenerator, which reuses the hot exhaust gases, the final exhaust is so cool that you can pass your hand through it without major discomfort. With a regenerator, economy is comparable to the other types of engines but without the regenerator it is admittedly less economical. On the plus side, it will burn kerosene, diesel fuel or other cheap fuels.

**The only additional** component to the engine is the starter which weighs about 15 pounds or less, thus making the overall engine considerably lighter than its reciprocating brother. Costwise, Sam Williams, president of Williams Research, believes that produced in equal quantities, it should cost the same as present engines.

The question arises as to why, with all these advantages, the gas turbine doesn't take over. There is still one stumbling block—acceleration.

From a standing stop, a car or truck could be braked with the compressor revving up, then jump away with a tremendous burst of speed. But if the car was idling along at ten or 15 or 20 miles an hour, acceleration would be slow.

**That is why the gas turbine** is more practical for stationary engines, heavy road-grading equipment, boats and heavy hauling vehicles at the moment. But Williams feels this problem of acceleration is being solved by the concentrated effort of several turbine manufacturers.

In the last six years, Williams has developed an inboard-outboard gas turbine engine for pleasureboats in addition to the world's smallest turbo jet now being produced for military drone aircraft and,


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most recently, the world's largest gas turbine for vehicular use.

"The gas turbines we and others are developing will rapidly serve applications in the heavy industrial and heavy vehicle field," predicts Sam Williams. "Next will come light industrial and marine use—and eventually they will be adapted to sports cars and general automotive use." •

## *Feather Merchant*

[*Continued from page* 70]

feathers such as ostrich plumes, which were not available in L.A. during the war —or so it seemed until one day when Joe was browsing through the basement of a Los Angeles department store and spotted some feather dusters piled up on a bargain counter. To his delight he saw that each contained a dozen untrimmed ostrich feathers. He bought two dusters, hurried back to his shop, trimmed and dyed the feathers and steamed them over a kettle to make them curl langorously. Then he took them to the millinery buyer of the same department store and got a large order for more. "I don't know how you got these," said the buyer. "We haven't had an ostrich plume since the war began." Joe bought and sold all the feather dusters in all the stores in L. A., and then the war was over.

Today he buys rooster feathers from Italy, peacock feathers from India, duck feathers from Hong Kong, pheasant feathers from Thailand, ostrich plumes from South Africa and vulture feathers from South America.

Nowadays lots of fan dancers come to Joe with their problems, and one girl's was that all her fans had been stolen and she needed new ones pronto. Joe made some up fast but warned her that the glue would need 24 hours to dry. She ignored the warning and in the middle of her tantalizing turn she began to molt—to the coarse delight of the expense account Charlies. She got off the floor clutching mere handfuls of feather. A ticklish business at times, says the feather merchant.

—*Jack B. Kemmerer*

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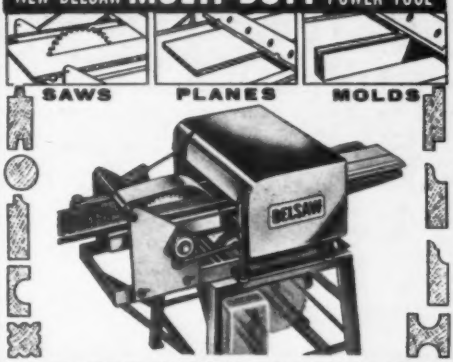


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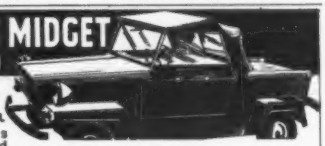

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AT ALL HARDWARE AND AUTO STORES
RADIATOR SPECIALTY COMPANY
CHARLOTTE, N. C.

## Ice Plow

[*Continued from page 77*]

Frank C. Ehinger, an efficiency engineer of Adrian, Mich., who has come up with a possible answer. Last year he patented a ship designed to cut a path through solid icefields, leaving a clear, ice-free channel behind it. Instead of merely breaking up the floes and passing the pieces astern, Ehinger's ice plow cuts the ice into narrow ribbons, breaks these up into small chunks and forces them along a ramp into the ship's maw. Here they are reduced to chips, passed into a compressed air nozzle and blown over the side.

**The entire bow section** of the ice plow can be opened by dropping its bottom-hinged sides to a horizontal position. Here they form ramp-like wings, level with and an extension of the ship's lower deck. Wings and deck tilt slightly in and down so that together, they form a shallow funnel leading to the ice crushing machinery beneath the vessel's bridge section. This, in turn, connects with a powerful blower through which the ice is discharged.

The business end of Ehinger's channel cutter is a row of big rotary saws, mounted on a pivoting frame that swings out over the vessel's bow. The frame is built in two halves which latch together into a single unit when cutting. Each half is separately powered by a husky electric motor which drives the saw spindle through simple gears and shafting. Mounted between the individual saw blades are radial chippers which break up the ice ribbons as they are cut, flipping the pieces back onto the ramp. As the ship advances, these are forced rearward by the pressure of freshly cut ice. Heating elements may be used to keep the shafting, saws and spindles from freezing in their bearings.

**When not in operation,** the pivoted saw frames are unlatched and the two halves are swung up and back on either side of the hoisting foremast and then down again onto deck cradles where they are secured.

Ehinger believes a fleet of his channel cutters can more than earn their way by permitting year-round use of the Seaway and the Great Lakes. He may soon have a chance to prove he's right for an oil company recently bought the rights to his plow and plans to build it. •

## Mail For McCahill

[Continued from page 52]

*hauling of boats up to 9 feet, 6 inches wide. We do not issue permits for anything beyond this width. The Administrative structure of the South Carolina State Highway Department and the Highway Patrol make it practically impossible for any kind of "payola" system to operate in the state since a boat and trailer would have to be towed through a number of counties, each of which has its own Patrol unit under specific supervision. I am, therefore, calling on you to give me evidence which you apparently have in your possession regarding the moving of your boat through this state. If I find that it has any basis in fact, you may be sure that any improper action by members of my staff will be treated with sternness. I shall also appreciate your publishing this letter with a request that any of your readers who have information or evidence of this nature give it directly to me. In that way, if there is any misconduct on the part of any employees of the State Highway Department, it can be dealt with as it should be.*

*C. R. McMillan*
*Chief Highway Commissioner*
*State H'wy Dep't, Columbia, S.C.*

Let's put it this way. My boat, *The Rooster*, has, and always has had, a 10'6" beam. In its nine trips one way or the other to Florida it was shipped three times and I skippered the route six times. On two of the land trips (one north and one south in 1957) it took the coastal route. In 1959 it was forced to take the "scenic" route. Any of you boat owners who have any beefs, send them to Commissioner McMillan.

- *I am a delivery boy and do a great deal of walking around Boston. Last week I saw a Chrysler 300C. I told this to a friend of mine and he said there was no such car. Is there such a car and, if so, was it a custom job? If not, is it any relation to the 300F?*

*George Silverman*
*Brookline, Mass.*

All the 1957 Chrysler 300s were known as 300Cs.

- *If you were unavoidably involved in a highway accident, what kind of car would you prefer to be in?*

*John Morris*
*Montreal, Quebec*

An armored car.

- *Many times have I heard and read that the new rear opening hoods on some of*

[Continued on next page]


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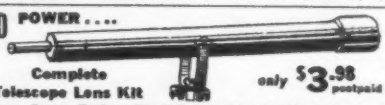

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*the current autos are so much safer than the front opening type, simply because they will not pop open and fly back in your face. This is very true but I have noticed on the new models that even a very slight collision will cause the rear opening hoods to unlatch and come through the windshield like a big straight razor. The front opening type might buckle or even fold back over the windshield but never did I see one act like the new ones do. Looks like such a hazard would be worse than an occasional hood popping loose. What do you think?*

*J. F. Bushnell*
*Harlan, Ky.*

Rear openers are safer. You're finding fault with the construction which only the jokers behind the drawing boards can make right.

● *Something has been bugging me for a long time. I've never heard your name on the top 20 so I'm not always sure just how to pronounce it. This makes it a bit embarrassing when I quote the old man. I'm betting it's spoken Mc-Kay-Hill but maybe McCall?*

*A/1c Duane H. Thorn*
*APO 328, San Francisco*

The hangman used to pronounce it "Makail" when he'd lead my ancestors to the scaffold.

● *I have a '53 Studebaker Six with overdrive. Recently I took a trip, driving from Minneapolis to Galesburg, Ill. on one tank of gas with some to spare. I kept it between 55 and 60 mph. The gas mileage figured out to 32 mpg. Everybody says it is impossible and that I'm nuts. Please confirm that it was possible to get this mileage per gallon.*

*Lee Waldon*
*Minneapolis, Minn.*

Sure, it's possible, but you must have done some careful driving.

● *Need some advice. My son, age 16½, has a 1937 Dodge he intends to rehabilitate. Considering his age and experience, I rate his ability and driving judgment highly enough to allow him the use of the family car. Question: Would it be wise to allow him to drop the front end (only) of his car, in a shop project, to a point where there will be a seven inch clearance between axle and road? The rear end of the car will remain at present height (stock). This modification is apparently something adolescent car owners consider "sharp" in this part of the country. My real concern is the change in driving characteristics, shifting of center of gravity and the danger involved in a possible quick, necessary change in direction. What do you think?*

*Bill Overton*
*San Diego, Calif.*

A lot would depend not only on your son's

ing ability but his engineering know-how, how this job was to be accomplished. ny a hot-rodder has been hurt by fooling nd with the manufacturer's front end mbly and steering geometry without the c engineering background needed.

*I've read in your column that one of the worst things a person can do to a car, er than hard, abusive driving, is to drive it real short distances, especially in the wintime. My home is less than one mile from job and I have to drive back and forth ry day. What can I do to neutralize the effects of this short-trip driving?*

*George Palecek*
*Denver, Colo.*

You have a tough problem because if you directly to work without any stops and urn the same way, your car never gets a nce to get fully warm in the winter. This ses condensation in the engine's gizzard d will quickly ruin your muffler and tailpe. The best way to avoid this sort of treatent is an extra several minutes of warming- in the morning and a few extra minutes running on your return. In the old days nd it's still true), the best way to get long r life was never to start an engine unless u were prepared to let it get fully warmed- before shutting-off. In some cars this may ke from ten to 12 miles, or 25 minutes. Why n't you move further away from your job? tter still, dig up an electric car; it would be eal for such short-hauling.

*In the June MI a Mr. J. W. in Valley Stream, N.Y., asked if you can't top this regard to the ducks left in his car. I'm re this remedy will take the smell out of his r: Go to a lumber yard and get a handful cedar post stripping and burn it inside the r. I've used this on dead shrimp left in rs and on skunks.*

*H. E. C., Jr.*
*San Antonio, Texas*

Yours must be an interesting occupation.

*I was looking through my husband's July issue of MI and noticed the letter you reeived concerning the safety warning "Alohol and gasoline don't mix." Didn't he nderstand the man meant drinking and drivng don't mix?*

*Mrs. Johnny Saurman*
*Lebanon, Ind.*

Then why don't they say so? There's enirely too much horsing around in this country as it is.

*—Tom McCahill*


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- ☐ Heating
- ☐ Painting Contractor
- ☐ Plumbing
- ☐ Reading Arch. Blueprints

**ART**
- ☐ Commercial Art
- ☐ Magazine Illus.
- ☐ Sign Painting and Design'g
- ☐ Sketching and Painting

**AUTOMOTIVE**
- ☐ Automobile
- ☐ Auto Body Rebuilding and Refinishing
- ☐ Auto Engine Tuneup
- ☐ Auto Electrical Technician
- ☐ Diesel Engines

**AVIATION**
- ☐ Aero-Engineering Technology
- ☐ Aviation Engine Mech.
- ☐ Reading Aircraft Blueprints

**BUSINESS**
- ☐ Accounting
- ☐ Advertising
- ☐ Bookkeeping and Cost Accounting
- ☐ Business Administration
- ☐ Business Management
- ☐ Clerk Typist
- ☐ Creative Salesmanship
- ☐ Managing a Small Business
- ☐ Professional Secretary
- ☐ Public Accounting
- ☐ Purchasing Agent
- ☐ Real Estate Salesmanship
- ☐ Salesmanship
- ☐ Salesmanship and Management
- ☐ Traffic Management

**CHEMICAL**
- ☐ Analytical Chemistry
- ☐ Chemical Engineering
- ☐ Chem. Lab. Technician
- ☐ General Chemistry
- ☐ Oil Field Technology
- ☐ Pulp and Paper Making

**CIVIL ENGINEERING**
- ☐ Civil Engineering
- ☐ Construction Engineering
- ☐ Highway Engineering
- ☐ Professional Engineer (Civil)
- ☐ Reading Struc. Blueprints
- ☐ Sanitary Engineer
- ☐ Sewage Plant Operator
- ☐ Structural Engineering
- ☐ Surveying and Mapping
- ☐ Water Works Operator

**DRAFTING**
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Drafting & Machine Design
- ☐ Electrical Drafting
- ☐ Electrical Engineer Drafting
- ☐ Industrial Piping Drafting
- ☐ Mechanical Drafting
- ☐ Sheet Metal Drafting

**ELECTRICAL**
- ☐ Electrical Appliance Servicing
- ☐ Electrical Engineering
- ☐ Electric Motor Repairman
- ☐ Elec. Engr. Technician
- ☐ Elec. Light and Power
- ☐ Practical Electrician
- ☐ Practical Lineman
- ☐ Professional Engineer

**HIGH SCHOOL**
- ☐ Good English
- ☐ High School Diploma
- ☐ High School General
- ☐ H. S. College Prep. (Eng'r'g & Science)
- ☐ High School Math
- ☐ High School Science
- ☐ Short Story Writing

**LEADERSHIP**
- ☐ Industrial Foremanship
- ☐ Industrial Supervision
- ☐ Personnel-Labor Relations
- ☐ Supervision

**MECHANICAL and SHOP**
- ☐ Diesel Engines
- ☐ Gas-Elec. Welding
- ☐ Heating and Air Conditioning
- ☐ Industrial Engineering
- ☐ Industrial Instrumentation
- ☐ Industrial Safety
- ☐ Machine Shop Practice
- ☐ Mechanical Engineering
- ☐ Plumbing and Heating
- ☐ Professional Engineer
- ☐ Quality Control
- ☐ Reading Shop Blueprints
- ☐ Refrigeration and Air Conditioning
- ☐ Tool Design ☐ Tool Making

**RADIO, TELEVISION**
- ☐ General Electronics Tech.
- ☐ Industrial Electronics
- ☐ Practical Radio-TV Eng'r'g
- ☐ Radio-TV Servicing
- ☐ TV Technician

**RAILROAD**
- ☐ General Railroad

**STEAM and DIESEL POWER**
- ☐ Combustion Engineering
- ☐ Power Plant Engineer
- ☐ Stationary Diesel Engr.
- ☐ Stationary Steam Engines

**TEXTILE**
- ☐ General

Name _____ Age _____ Home Address _____

City _____ Zone _____ State _____ Working Hours _____ A.M. to P.M. _____

Occupation _____

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